

Indiana University School of **informatics**

Vol. 1, No. 2 • Spring 2003

Informatics Building dedicated in Bloomington



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The IU School of Informatics offers an academic path for students from diverse backgrounds who are seeking a rewarding technology career that combines information technology with another area of study, thus opening varied career opportunities. Just as the discipline of informatics operates in a variety of contexts, the School of Informatics has programs on a growing number of IU campuses. The curriculum focuses on both the technical and human aspects of problem solving and emphasizes innovation and teamwork. The school understands the role of research in building a world-class faculty and in recruiting and educating outstanding students, but also places a primacy on its role in creating new knowledge and technologies for the betterment of people everywhere. The school also is firmly committed to collaboration with industry and government in order to hold up its side of the "three-legged stool" that supports economic growth and progress.

Cover: On Jan. 30, 2003, IU trustees presided over a ceremony to dedicate the Informatics Building on the Bloomington campus. Attendees included, from lower left, Donna Gastevich, John Cauffman, IUB Chancellor Sharon Stephens Brehm, Rep. Eric Koch, IU's Interim President Gerald L. Bepko, Rep. Peggy Welch, Dean J. Michael Dunn, and Megan Lewis.
Cover design by Kristina Wood.

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School of Informatics

Dean..... J. Michael Dunn
Executive Associate Dean..... Darrell L. Bailey
Assistant Dean..... Susan Quinn
Assistant Dean..... W. Mark McCreary
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Alumni contributing to Indiana

As the School of Informatics completes its third academic year, I am pleased to take note of the progress we've made, and I am challenged by the path before us.

The school's student body continues to grow. It is an honor to acknowledge the nearly 200 graduates who will receive informatics degrees this spring. Of these, 38 will be graduating with master's degrees in informatics. A number of these students are profiled in this issue. Among them are a scholarship recipient in chemical informatics, a student who is a publisher, minister, and community activist, and students who partnered with Delphi to create educational modules. Their diverse backgrounds, interests, and accomplishments demonstrate the breadth and application of informatics.

Our alumni have varied interests and achievements, but each one is making substantial contributions to Indiana through the application of informatics to real-world situations. While our program is young, to date most of our graduates are remaining in Indiana, where they live, work, and help build the state economy. Distinguished alumni profiled in this issue include Amy Warner, who has made real contributions to state leadership in information technology. We also profile our young, promising alumni such as Michael Hunsaker and Brian DeKemper, who are just beginning their careers, and a group of new media alumni who have founded a film festival in Indianapolis.

Our growth is also demonstrated by the dedication of the Informatics Building in Bloomington. The trustees, IU Interim President Gerald Bepko, and a number of distinguished guests were on hand to welcome the first permanent Informatics Building to the Bloomington campus. The newly renovated building houses faculty and administrative offices, teaching labs, and a presentation room. Among these is the newly named Mark and Karen Hill Instructional Laboratory. And the school's physical presence will soon be felt loud and clear in Indianapolis, where the Informatics Complex is rising.

IUB Chancellor Sharon Stephens Brehm, in her dedication of our new building, observed, "[The School of Informatics] is absolutely essential for the future of the state of Indiana. Despite the current dismal condition of the state, national, and indeed world economy, the long-term prospects are easy to predict. Along with everyone else, Indiana will prosper to the extent that it can build a vigorous science-based economy with unique strengths in biotechnology, information technology, and advanced manufacturing."

Our students and alumni are already making contributions to the state. We are fully aware that the degree of success enjoyed by our students will define the School of Informatics. I believe that the success of the school is also reflected on our state. Our school is now poised to help define Indiana as a technology leader.



J. Michael Dunn

A handwritten signature in dark ink that reads "J. Michael Dunn". The signature is written in a cursive, slightly slanted style.



IUPUI Informatics Complex, new programs under way

As one enters the IUPUI campus at Michigan and West streets, an impressive new building is under construction that will become the gateway to the campus. The School of Informatics is fortunate to have that building and its location as the new Informatics and Communications Technology Complex. Scheduled for completion in spring 2004 with the first classes meeting in fall 2004, the building will be the much-anticipated home for informatics research, teaching, and learning at IUPUI.

Designed by world-renowned New York architectural firm Robert A.M. Stern and Associates, the building will also house the academic units of journalism, music, and the many components of the University Information Technology Services. These will include the network operations center of the Abilene Project/Internet2 and the Pervasive Technology Laboratories, as well as telecommunications facilities and teaching and learning support services for the campus.

Noteworthy will be an environment for close collaboration between informatics activity and the expertise of the other academic units and the communications service providers for the university. Building upon already close partnerships with many schools and departments on campus, the building will be a “think-tank” for many exciting initiatives already under way. Much of this activity will emerge from the Informatics Research Institute, with labs in Indianapolis and Bloomington. In Indianapolis, the IRI has already developed the Cultural Library Indexing Our Heritage (CLIOH) Project and the Ruth Lilly Health Education Center’s “Health Education for the 21st Century,” as well as other multidisciplinary collaborations focusing on technology, the arts and humanities, and health and life sciences.

Enrollments in the School of Informatics continue to soar at IUPUI. Within the existing seven degree programs — including New Media Program undergraduate and graduate degrees, bioinformatics, health informatics, and chemical informatics — we currently have 832 students enrolled. This includes the new students who were welcomed in the Health Information Administration Program. Beginning this fall, a new track in laboratory informatics will be added to chemical informatics, as well as the implementation of the Human Computer Interaction master’s degree program. Systematic planning is also under way for a certificate program and cognate in forensic informatics. New facilities for laboratory informatics, associated with INGEN, will be housed in the laboratories of the Biotechnology Research and Training Center at 16th Street and Stadium Drive. These new programs, along with the existing informatics programs, will provide critical educational opportunities for Indiana’s students and focus on key state economic initiatives in information technology and health and life sciences.

Key to the success of a growing school is the expertise of its faculty and talent of its students. Faculty knowledge in wireless technology, human computer interaction and usability, scientific and arts/humanities visualization, health information processing, game design, social and organizational dynamics of IT, graphic design, Web development, strategic IT and business concept development, and data management is providing a vital framework for classroom teaching, student projects, and research agendas.

Extending the reach of informatics into the community has been achieved by a number of projects, including internships and capstone projects with Indiana companies and not-for-profit organizations: Delphi Automotive, Teachers Credit Union, the Renal Network of Indiana, Girls Inc., Little Red Door Cancer Agency, Polis Center’s “Indiana Online,” Eiteljorg Museum’s “The People’s Place,” the BOS Community Development Corp., and the Ruth Lilly Health Education Center. Highlighting this involvement was the recent ConnectTech conference that brought business and industry leaders to campus to form collaborations with university researchers, including many of the recent informatics initiatives.

Also, this spring the New Media Program sponsored a groundbreaking event: Interface Symposium 2003, Celebrating Digital Storytelling, Multimedia Communication, and Computer Artistry. We hosted practitioners and executives from prominent national and regional new media industries. Students, prospective students, parents and the community met industry professionals in two days of workshops and programs covering innovative techniques in topics including special effects, conceptual illustration, and interactive design and animation. Invited guests drew upon their experiences with Cartoon Network, DC Comics, Hypnotic Arts, Innovative, Marvel Entertainment Group, Sony Entertainment, the Thomson Corp., and Walt Disney.

As we prepare for the great opportunities that are ahead, we are mindful that the greatest resource of our new school is its people — students, faculty, and staff. This is a truly human enterprise and we have a very special and unique role to play in advancing Indiana’s future through the creative use and application of information technology in its many forms and faces. To all our informatics alumni, I would invite you to join us as we pursue that goal with great enthusiasm and excitement.

— Darrell Bailey
Executive Associate Dean

IUPUI School of Informatics hosts Interface Symposium 2003

The first Interface Symposium on the IUPUI campus, an event celebrating storytelling, communication, and computer artistry, was held April 4–5. The symposium was created through the vision of Durwin Talon, associate professor, and Dan Baldwin, assistant professor, both in the School of Informatics' New Media Program.

Workshops, presentations, and panel discussions served as marketing, admissions, and teaching tools for existing and prospective students, as well as a means to develop new industry partnerships for both the School of Informatics and IUPUI. Notable speakers representing various New Media disciplines were chosen from existing industry connections to participate in every aspect of the symposium. Guest speakers included: Dee Dee Wilkins, owner/art director, Flaxenfield Design; Scott Hampton, artist, DC Comics; Bernie Wrightson, conceptual illustrator, Spiderman (Sony Entertainment); Dave Guertin, lead character designer, Insomniac Games; Brian Ludwick, animator designer, Primal Screen Animation; Marisa Materna, Literacy Network; and Rachele Lewis, Klasky Csupo.

The first day was devoted to a series of intimate workshops held in the New Media labs. This format was designed to be small enough for student participation and allowed speakers to give demonstrations, show work techniques, conduct shop talk, and discuss breaking into the work place. The second day included portfolio reviews for graduate students and seniors and presentations by guest speakers. The reviews served as an opportunity for graduating students to discuss their work with an industry representative of their choice. This one-to-one exposure with industry professionals helped students fine-tune their portfolios and provided them with invaluable information as they prepare to enter the job market.

Guest presentations, designed to give an overview of each guest speaker's area of expertise, took place in Lecture Hall and were open to the community. Lilly Auditorium in the University Library provided the venue for a reception and panel discussion that capped off the symposium. Here, speakers discussed the states of their various industries, where they feel their futures are headed, and how informatics students can be a part of it. The symposium exposed students to the knowledge and inspiration of the invited speakers. In addition, the event introduced our stellar students to the professional community and demonstrated the school's openness to partnerships.



I N T E R F A C E
S Y M P O S I U M 2 0 0 3 I U P U I



© Insomniac Comics, Sony Entertainment

© DC Comics, Paramount Studios

© Klasky Csupo

™ Geami, Flaxenfield Design

© Marvel Entertainment Group, Sony Entertainment

© PBS, Cartoon Network, Sigraph

Faculty profile: Durwin Talon

Associate Professor Durwin Talon is in his first year as a faculty member at IUPUI, but he is certainly no stranger to teaching or New Media. Talon was a professor at the Savannah College of Art and Design for almost a decade before moving to Indianapolis to join the Indiana University School of Informatics. He researched, developed, and taught technology classes emphasizing visual communication, storytelling techniques, and computer skills.



Talon

Talon taught for the Illustration, Graphic Design, and Computer Art Departments and is noted as the co-founder of the Sequential Art Department. Through his work as an art director, lecturer, author, illustrator, and educator, he has won numerous teaching, illustration, and advertising awards.

His book, *Panel Discussions* from TwoMorrows Publishing, is an overview of design trends in sequential art and storytelling. His artwork has been featured on the covers of "Batman," "Skin Walker," and "Queen and Country." Talon has an extensive client list, has been part of numerous gallery exhibitions showcasing his electronic art, and still manages to be involved in many pro bono projects.

Talon currently teaches Introductory New Media classes and the Video Game Development courses for the program.

Laboratory informatics: A new graduate program

Beginning in fall 2003, the School of Informatics will offer a new graduate program in laboratory informatics. This program will be offered as a specialized track within the existing Chemical Informatics Graduate Program at IUPUI. Douglas Perry, PhD, associate dean for graduate studies and research of the Indiana University School of Informatics on the Indianapolis campus, will direct the program. New faculty members are also being recruited.

In consultation with industry leaders and representatives throughout the United States and Europe, Perry prepared specifications for the new program, the first of its kind in the United States. In December 2001, he was awarded a \$75,000 grant from the Alfred P. Sloan Foundation (through the foundation's Professional Master's in Science Program) to develop this graduate program for the Indiana University School of Informatics.

Laboratory informatics is the specialized application of information technology to optimize efficiency in laboratory operations. The profession encompasses areas such as data acquisition, data processing, laboratory information management system (LIMS), laboratory automation, scientific data management (including data analysis and long-term archiving), and electronic laboratory notebooks (ELN). Focus is on the application of this technology in analytical, production, and research laboratories.

The graduate program is designed for students with undergraduate degrees in the physical or laboratory-based life sciences who wish to pursue careers in the agricultural, biomedical, chemical, food, petroleum, and pharmaceutical industries. Students would earn an MS in chemical informatics with specialization in laboratory informatics.

The core courses included in the curriculum for laboratory informatics are Data Acquisition and

Laboratory Automation, Laboratory Information Management Systems, Scientific Data Management and Analysis, and Chemical Information Technology. Other coursework includes informatics core courses, electives from other IU schools to build on the core foundation, graduate projects, and opportunities for industry internships in real-world settings.

Graduates work primarily in commercial and municipal laboratories as operations specialists, LIMS analysts, and lab managers. A significant job market also exists with laboratory software and instrumentation companies in sales, service, and training positions.

Faculty profile: Douglas Perry

Douglas Perry, associate dean for graduate studies and research, has a background in cell biology with training in health sciences. He is currently one of the few academics actively working in the field of laboratory informatics



Perry

and is actively involved with the LIMS Institute, a nonprofit organization dedicated to advancing all aspects of laboratory information management. Perry served on the Organizing Committee for LIMS 2002 and is currently the program chair of Laboratory

Informatics 2003, the first international conference devoted to this emerging field.

A native of San Francisco, Perry received his undergraduate and graduate education in New York. He holds an AA from Skyline College (San Bruno, Calif.), a BS in liberal arts (biology) from the State University of New York, an MS in health sciences from the State University of New York at Stony Brook, an MA in biology from the City College of New York, and a PhD in biomedical sciences (cell biology) from the Mount Sinai School of Medicine.

He began his teaching career as an instructor at the University of Albuquerque in 1974. In 1991, he joined the faculty on the Indianapolis campus of Indiana University.

As associate dean, Perry is responsible for developing and overseeing the informatics graduate programs and research activities in the School of Informatics at IUPUI. The graduate programs include chemical informatics, bioinformatics, health informatics, human computer interaction, media arts and science, and now laboratory informatics.

Telamon Informatics Scholarship for undergraduates announced

Dean J. Michael Dunn is pleased to announce the establishment of an endowment to support the Telamon Informatics Scholarship. The annual scholarship from the Telamon Corp. will be awarded to an undergraduate student majoring in informatics who has demonstrated academic excellence.

Telamon Corp. is a minority-owned and employee-owned broadband and telecommunications deployment company. The scholarship was arranged through the generosity of Albert Chen, founder and president of the Indianapolis-based Telamon Corp. and a member of the School of Informatics Dean's Advisory Council.

HIA celebrates anniversary in conjunction with Gunn Forum

As the Indiana University Health Information Administration Program marks the 50th anniversary of its first graduating class, plans are being made for a celebration in conjunction with the 21st annual Gertrude L. Gunn Forum. The forum is an event that was developed to honor the recipients of the Gertrude L. Gunn Scholarship awards presented in memory of the HIA Program's founder.

The concept of a training program at the Indiana University Medical Center for Medical Record Librarians is first documented in the minutes of a Medical Records Committee meeting dated Nov. 22, 1934. On that date, the committee reviewed a plan for a six-month certificate program. The training was to consist of both theoretical instruction and practical experiences in several hospital departments. Hospitals were authorized to charge \$10-\$25 per month to provide the training. For unknown reasons, the program never became a reality.

In 1948, Gertrude Gunn was employed by the Indiana University Medical Center to direct the Hospital Medical Records Department. The education program for the "Medical Record Librarian" was established in 1950 — only two years after Gunn's appointment — and the first student graduated from the program in 1952. Although there was one other baccalaureate program in existence in a private college in the United States, Indiana University was the first state university to grant a degree in medical record librarianship.

Gunn retired from the university on June 30, 1967, after serving as director of the program since its inception. Her accomplishments in the area of medical record administration were well known throughout the state of Indiana and are recognized nationally.

The Gertrude L. Gunn Memorial Fund was established in 1974, following her death. For several years, the fund, under the Indiana University Foundation, assisted students by providing small loans. Through donations from many generous individuals, the fund grew, and it became possible to change the focus from that of loans to scholarships. At the request of the dean of the Medical School, the fund was converted to an endowment. Since 1990, two scholarships have

been awarded annually to senior students enrolled in the Health Information Administration Program at IU.

This year, the Gertrude L. Gunn Forum will be held on April 17 at 4 p.m. at the Hyatt Hotel in downtown Indianapolis, following the daily sessions for the Indiana Health Information Management Association's annual meeting. The VanAusdall and Farrar, Mary L. McKenzie, and Gertrude L. Gunn Endowment scholarships will be presented to students selected from members of the 2002-03 HIA Professional Program.

Traditionally, the event also includes a guest speaker, usually a noted alumna and health information management professional. This year is certainly no exception, as Carol Lewis of Baltimore, Md., featured in the last edition of the *Informatics* magazine, has graciously accepted the invitation to speak. The topic of her presentation will be "Reflections on a Profession." She will share her thoughts about the development of the health information management profession, changes she has experienced, and her expectations of its future.

Immediately following the forum there will be a reception in honor of the Health Information Administration Program and its accomplishments over the past 50 years. Former program directors, noted alumni, and others who have made significant contributions to the program will be recognized in a brief ceremony during the reception. Distinguished members of the professional community as well as representatives from Indiana University, including Interim President Gerald L. Bepko, will be on hand to help celebrate both the outstanding history and promising future of the program.



Gunn

50 years and counting:
HEALTH INFORMATION
ADMINISTRATION AT IU

School of Informatics and Indiana's 2016 Initiative wow State Fair attendees

On Aug. 15–16, 2002, the Indiana University School of Informatics participated in the state's 2016 Initiative, Communities Building Community, by sharing a booth at the 2002 State Fair.

Gov. Frank O'Bannon created the Indiana 2016 Task Force as preparation, in part, for the bicentennial of the state of Indiana. The 25-member task force, chaired by First Lady Judy O'Bannon, is encouraging individuals, organizations, and communities to set their sights on their vision for the future.

Indiana 2016 seeks to challenge students with new frontiers, help them to set goals and to inspire

Hoosiers of all ages to join in the technical revolution. With these goals in mind, the Indiana 2016 State Fair Committee invited some of Indiana's top innovative organizations and universities to demonstrate their technological innovations for one or two days in the fair's Exhibition Hall.

The School of Informatics brought together people from the Bloomington and Indianapolis campuses to showcase the types of technology being used in the School of Informatics and to present information about all of the programs currently being offered. The demonstrations of technology focused on tools in the



Informatics Building dedicated in Bloomington

On Jan. 30, 2003, Indiana University trustees dedicated the Informatics Building on the Bloomington campus. The formal ceremony was presided over by IU Interim President Gerald L. Bepko. Distinguished presenters included IUB Chancellor Sharon Stephens Brehm; Informatics Dean J. Michael Dunn; and James A. Schellinger, president, CSO Architects.

Attending the event were the IU trustees, members of the Informatics Dean's Advisory Council, distinguished state Reps. Peggy Welch and Eric Koch, Bloomington Mayor John Fernandez, university chancellors, and many other distinguished community leaders. Mark Hill was present to witness the naming of the Mark and Karen Hill Instructional Laboratory, which offers informatics students 46 Pentium 4 workstations.

James Schellinger presented the building to Frederick F. Eichhorn Jr., president of the IU Board of Trustees. Interim President Bepko's dedication of the building was followed by responses from William Aspray, professor of informatics; Megan Lewis,

a graduate student in the school's Human Computer Interaction Program; and John R. Gibbs, executive vice president of Interactive Intelligence and chair of the Informatics Dean's Advisory Council. Special music for the ceremony was performed by Atana Tzvetkov, an IU School of Music doctoral candidate in guitar.

The Informatics Building is a milestone in the new school's remarkable growth. The building was formerly the Alpha Omicron Pi house, built by the sorority in 1954. The original building, designed in the international style by renowned Indiana architect Edward D. Pierre, could accommodate approximately 75 women. There were various renovations over the years, the most notable completed in 1991 by IU architect Robert W. Pond, who studied with Frank Lloyd Wright. That renovation included the large wing on the back of the building that brought the chapter house capacity to 108. The building was sold to IU in 1999, several years after the sorority vacated

(continued on page 11)



Professor William Aspray, School of Informatics

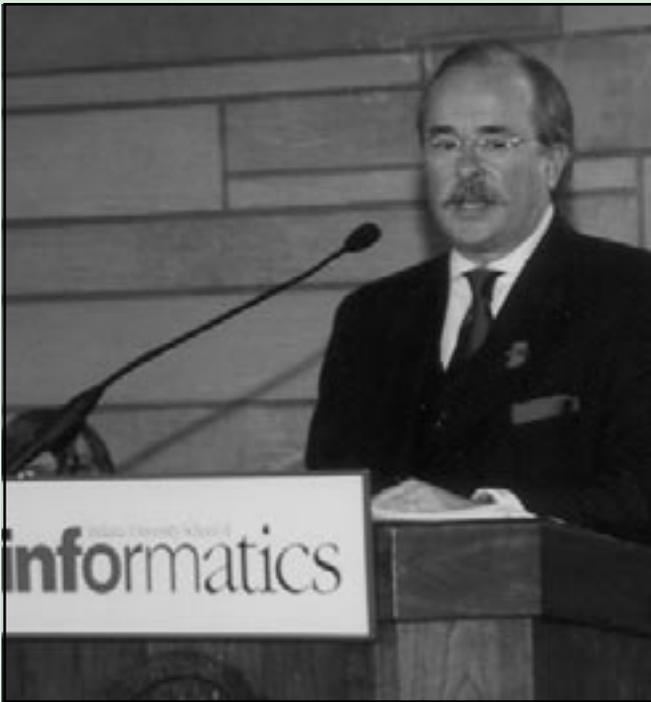
"Informatics plays a defining role for academic study in the new century. ... Today it is Indiana that leads this revolution. Whereas scholars of the previous century were typically trained in a single discipline, our current faculty earned degrees in 12 different disciplines, ranging across the arts, the social sciences, the natural sciences, and the mathematical and computing disciplines. It is thus ever more critical that we have a common place to gather and learn from our colleagues to forge this new discipline of informatics; where we will have superb teaching laboratories in which our faculty and our students can pursue advanced education and cutting-edge research; and where we have ready access to outstanding computing and communication facilities."



Jane Martin, managing director of Village Ventures and member of the Dean's Advisory Council

Sharon Stephens Brehm
IU Bloomington Chancellor and
IU Vice President for Academic Affairs

"[The School of Informatics] is also absolutely essential for the future of the state of Indiana. Despite the current dismal condition of the state, national, and indeed world economy, the long-term prospects are easy to predict. Along with everyone else, Indiana will prosper to the extent that it can build a vigorous science-based economy with unique strengths in biotechnology, information technology, and advanced manufacturing."



John R. Gibbs
Executive Vice President and Co-Founder, Interactive Intelligence Inc., and Chair, Dean's Advisory Council, IU School of Informatics

"As chair of the Dean's Advisory Council for the IU School of Informatics, I am honored and delighted to represent the council to remark on this momentous occasion of the dedication of the Informatics Building in Bloomington. The IU School of Informatics is a vital and critical component for economic success in Indiana. Technology is not something mystical, but something to comfortably embrace. It has become the very cornerstone of business and the economy. It has become the very foundation of our society. It is the ambition of the Dean's Advisory Council to assist and support the school, but also to help create a model school that other universities



IU Trustee Cora Breckenridge, center, speaks with Brian and Brenda Lewis, parents of informatics alumna Megan Lewis.



IU Trustees President Frederick F. Eichhorn visits with Student Trustee Sacha Willsey during the reception.

Informatics students express appreciation for new home

I am honored to have the opportunity to speak to you today on behalf of the students in the School of Informatics, whose number — in just three short years — has quickly grown to more than 800.

Over the course of human history, buildings have come to represent more than just bricks and mortar. They have come — post 9/11 — to symbolize concepts we hold dear: liberty, freedom, and the pursuit of happiness.

It is not too presumptuous to suggest that the new School of Informatics building may some day come to symbolize a new dawn in the technological evolution of the state of Indiana, a dawn that will see its sons and daughters employed in future endeavors bringing national and international recognition to both the school and the university.

For my fellow students and me — and for our faculty — this building will be a gathering place for academic interaction, discourse, and dialogue. It will be the locus of ideas — both familiar and unfamiliar — and a vessel for synergistic activity. We now have a unique spot in our universe to call our own and a place we can proudly hold up to others who may be interested in studying within its walls. Those of us who have been with the program since its inception have a true appreciation for what it means to have a place to call home. For us, the building takes on an even greater meaning and significance as it joins the many other distinguished structures on this beautiful campus.

On behalf of informatics students, I would like to thank the university administration, the architects, and the construction teams — and everyone involved in making this building a reality. It is now up to us — the students and



Megan Lewis, who earned a BS in informatics in 2002 and is currently a graduate student in the Human Computer Interaction Program, speaks on behalf of informatics students.

faculty — to put a smile on this building's face and make it a proud and important part of this university, by dedicating ourselves to the pursuit of excellence in an exciting, technologically driven era.

— Megan Lewis



Rep. Eric Koch, left, Interim President Gerald L. Bepko, and Rep. Peggy Welch



Dean J. Michael Dunn

Dedication

(continued from page 9)

the house. The current AOII chapter house is on North Jordan Avenue.

Indiana University began renovations on the building in spring 2002. The faculty and staff of the School of Informatics moved to the facility in October 2002. The first classes were held in the building in January 2003. The Informatics Building currently houses, in addition to administrative and faculty offices, the Informatics Research Institute, instructional laboratories, collaboration studios, and a presentation room.



Mark Hill and IUB Chancellor Sharon Stephens Brehm listen to a reception attendee's remarks about the Informatics Building.



John Gibbs, left, chair of the Dean's Advisory Council, discusses business with fellow member Lee Marchant.



Professor William Aspray, left, and David Bowers, EDS, engage in shop talk.

Building dedication photography by Tom Stio

Informatics Research Institute Project: Reciprocal Net

The first major funded project for the Informatics Research Institute on the Bloomington campus is "The Reciprocal Net — a Distributed Molecular Database." Funded as part of the National Science Digital Library, the Reciprocal Net is in its second year of funding. The project presents an interesting mix of informatics topics, including database technologies, laboratory information management systems, and computer visualization and user interface techniques.

The project started as a local sample monitoring system developed in the Molecular Structure Center at IUB. In order to allow the local staff to become more efficient, a simple-minded Laboratory Information Management System was created to allow tracking of samples, from submission by a student to final publication of results. As part of this process, a series of Web-based tools was developed that allowed the students and other collaborators to locate and manipulate the molecular images of the structures they had submitted. By making the time-consuming technical tasks Web-based, the collaborators had better access to the information they needed, and the scientific staff of the IUMSC were able to devote more time to the crystallographic problems.

Because the system was readily located on the Web, a large number of other research laboratories around the country became interested in using the system, and after several planning meetings a proposal was submitted by the IRI to the National Science Founda-

tion to develop a national Internet-based system that could be used by all crystallography laboratories. The collaborative nature of the project is readily seen in the list of principal investigators:

- **Gerald Bernbom**, Office of the Vice President for Information Technology
- **John C. Bollinger**, Department of Chemistry
- **Randall Bramley**, Department of Computer Science
- **William Harwood**, School of Education
- **John C. Huffman**, School of Informatics and Department of Chemistry
- **Gary Wiggins**, School of Informatics and Chemistry Library

In addition to the local support and support from other crystallography laboratories, the project also received endorsement from several of the major crystallographic databases and professional crystallography organizations.

The Reciprocal Net serves a variety of purposes. Perhaps the most significant is that it will be one of the first user-maintained distributed databases for scientific information. With each laboratory capable of adding several hundred new molecular structures annually, it could rapidly become one of the largest scientific databases with open access. The graphical interfaces to the Reciprocal Net are certainly one of its highlights. Embedded Java applets allow the user to view and manipulate the molecules using most com-

mon Web browsers. A variety of applets have been developed to not only view the molecules in a variety of formats (including 3-D stereographic modes), but also to allow the user to determine bond distances and angles for selected atoms in the molecule. In addition to the applets, users can generate a variety of publication quality graphical images using server-based programs. One feature of the Reciprocal Net is an 18-processor Beowulf "mini-super-computer" that is dedicated to generating ray-traced images as requested by the user. This innovative feature is certainly one of the first examples of having a cluster computing environment that is accessible to the public. Images of remarkable quality are generated in less than one second using the Beowulf technology.

Another highlight of the project is the development of a selection of "Common Mol-



Typical screen for one of the common molecules entries of the Reciprocal Net database — the user can easily manipulate the molecule by dragging the mouse cursor in the applet window. When a desired view is obtained, a publication-quality image can be generated.



Nearly 20 graduate and undergraduate students from several schools and departments are currently working on the Reciprocal Net project. Leah Sandvoss is developing sections of the common molecules interface as part of her training for a master's degree in chemical informatics.

ecules." This section is designed as an educational resource for teachers and students of all ages. More than 300 entries have been added to the eight sections of the common molecules collection, including such things as medicinal compounds, minerals and gems, macromolecules, highly reactive molecules, and molecules that effect taste and aroma. The common molecule section has proven very popular, with more than 30,000 hits per day from throughout the world.

The contents of the database consist of detailed crystallographic information for each of the entries (currently more than 5,000) and the location in the data repository of the actual molecular structure data. The molecular data consists of the coordinates and atomic identification for all of the atoms in the material. This information can be used not only to examine the molecular structure, but also to examine the extended structure of materials in the crystalline phase and to calculate molecular properties. Software is now being developed that will greatly extend the value of the database to materials for scientists and researchers in other fields.

Several university laboratories have already installed servers, and more than a dozen are expected to be online by this summer.

— John C. Huffman
Co-Director, Informatics Research Institute,
and Senior Scientist, Department of Chemistry

For more information, visit these Web sites:

- *Reciprocal Net*
www.reciprocalnet.org/
- *Molecular Structure Center at IUB*
www.iumsc.indiana.edu/Beowulf/index.html

IRI hosts various display systems

The Bloomington lab of the Informatics Research Institute is located on the third floor of the new School of Informatics and is slowly evolving into a resource that will prove invaluable to faculty and students in the school. A major emphasis of the IRI is the development of advanced computing technologies and skills that can be deployed throughout the school and university. In many cases the technologies are not generally available, or are experimental in nature. The IRI is being used as a testing environment so that these technologies can be incorporated into the information technology infrastructure of the university. To facilitate the introduction of these technologies, the University Information Technology Services has established an office in the IRI where UITs professional staff will be available for consultation and can assist in ongoing projects.

The most recent introductions involve the installation and testing of several large-format display systems. The first of these is a "Display Wall" consisting of a large rear-screen projection system with four projectors to generate a single composite image. The display wall is funded in part by a recent NSF award to Indiana University to create a facility for "Analysis and Visualization of Instrument-Driven Data" (AVIDD, see www.iumsc.indiana.edu/XPort/avidd.htm). The software being used allows the four individual screens to appear as one large five-foot-by-seven-foot image with a resolution of 2,048 x 1,536 pixels. By using a specialized screen material designed for rear projection, the image is clear to nearly everyone in the room, even with normal lighting on. One of the first uses of the display wall is the creation of an Access Grid node. The AG is an ensemble of video cameras and microphones that can capture the natural feel of a meeting in progress. In order to have a realistic and smooth "same as being there" feeling, the AG nodes require a high-speed Internet2 connection. This realism is further enhanced by using sophisticated echo cancellation sound systems and several video cameras to capture not only the speaker, but the other meeting participants and views of the room. The system is useful for distributed meetings, seminars, lectures, collaborative work sessions, and tutorials.

There are currently more than 150 AG nodes around the world, and the number is rapidly increasing. An examination of the AG schedule (see "scheduling" on the AG Web site at www-fp.mcs.anl.gov/fl/accessgrid/) shows the diversity and richness of the current offering. The IRI has already hosted several AG programs and has received requests for several upcoming meetings.

In addition to the AG node, the IRI has several other collaboration systems under development that utilize large-format displays. A project involving researchers from the IRI, the Department of Chemistry, the Department of Computer Science, and UITs is the development of hardware and software for the access and monitoring of remote scientific instrumentation. The display system under construction allows researchers in the IRI to communicate with co-workers at the remote site. Remote cameras and other interfaces provide for real-time monitoring of the experiment, and the computing capabilities of the AVIDD system can be used to move and process the data as it is collected. The first uses of this system are to allow IU crystallographers to access instruments at the nation's synchrotron sources. One current target of this system involves collection of crystallographic data at the Argonne National Laboratory APS. Crystals that cannot be examined using university-based

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The large tiled display screen in the IRI is used for an Access Grid presentation. The three large windows represent feeds from the host site, including a PowerPoint presentation, a view of the speaker, and a view of the audience at the remote site. The small windows include remote sites that are participating in the session. One of the local cameras is visible at the top of the tiled screen.

Display systems

(continued from page 13)

systems are transported to the APS every few months, and crystallographers from IU and other research universities can interact with researchers at the APS while their samples are examined. The movement, storage, and analysis of the data presents a challenge in that the instruments being utilized can generate in excess of one megabyte of data every five seconds. A typical data set may consist of well over one gigabyte of data that needs to be transmitted during the course of the experiment. In order to facilitate the collection and analysis of the data remotely, software is being developed that will allow the remote collaborator to request data transmission priority during the early stages of the experiment. A dual large-screen system can be used to allow researchers at several sites to examine the results of the data and communicate

online. The display system includes one large screen system capable of passive 3-D visualization, adjacent to the screen that is used to share video images and data. The 3-D visualization system can be used to look at complex molecular structures as well as examination of the raw data in three dimensions. The system has also been used with special microscopes to allow remote users to examine the crystals in 3-D as they are being prepared for analysis. Researchers at IU are currently using parts of the system for analysis of small molecules (fewer than ~500 atoms), and the system will soon be made available to research groups at IU and IUPUI engaged in macromolecular crystallography.

Although the remote instrument access system was initially designed to allow IU researchers to more easily access remote instruments at Argonne National Laboratory and Lawrence Berkley National Laboratory, it has also proven to be invaluable in monitoring local instrumentation. To aid in developing the technology, video monitoring and collaboration systems have been installed in the crystallography laboratories in the IUMSC, and the Web interfaces developed for the project allow local researchers to check the status of experiments remotely. It has also led to the development of several outreach programs to allow science classes in local schools to participate in “real science.”

The ultimate goal of all of these projects is to provide user interfaces that will allow scientists and others to more effectively organize and understand the complex data now becoming pervasive in nearly every field. More important, it will provide problems that are ideal research topics for students and faculty in the School of Informatics. 



John C. Huffman, right, demonstrates a 3-D display tracking satellites in orbit around Earth.

Informatics professor receives prestigious NSF grant

Sun Kim, assistant professor of informatics, received the National Science Foundation's most prestigious award for new faculty members. The Career Award recognizes and supports the early career-development activities of teacher-scholars who are most likely to become the academic leaders of the 21st century.

Kim's research interests lie primarily in bioinformatics and related computational techniques, such as string pattern-matching techniques, machine learning, and combinatorial search. He has been developing algorithms and frameworks for genome sequencing and computational comparative genomics.

The five-year award of over half a million dollars will support Kim's research. His project is to build a unified computational environment for prokaryotic genome projects. The scope of a genome project includes the determination of the sequence, identification of gene, and annotation of the genome.

Each step involves a huge amount of data and is computationally difficult, often requiring several separate computational environments. To make the system more efficient and less likely to be dependent on personal expertise, Kim is developing a common, reconfigurable computational environment with four major components: toolkits for string matching and clustering; an ordering procedure for sets of assembled sequence; a platform for comparative alignment and annotation; and an exploratory sequence analysis

environment. The computational environment will alleviate the obstacles encountered at different stages of a project and will contribute to faster, more accurate determination of assembled sequences and their annotations. Kim is also working with students and developing curriculum in the bioinformatics program, and participates in research projects throughout the institution.



Kim

Kim received bachelor's, master's, and doctoral degrees in computer science from Seoul National University, Korea Advanced Institute of Science and Technology, and the University of Iowa, respectively. After graduation, he was director of bioinformatics and postdoctoral fellow at the Biotechnology Center and a visiting assistant professor of animal sciences at the University of Illinois at Urbana-Champaign from 1997 to 1998. He joined DuPont Central Research in 1998 and worked as senior computer scientist until August 2001. He is currently assistant professor at the School of Informatics, INGEN investigator at the Center for Genomics and Bioinformatics, and adjunct assistant professor of computer science at Indiana University Bloomington.

School of Informatics research grants of note

Dan Baldwin, assistant professor of new media (IUPUI), recently received funding by the IUPUI Office of Professional Development to pursue work on "Viewer Interaction and Narrative Immersion: A Convergence of Digital and Traditional Media."

Sun Kim, assistant professor of informatics (IUB), is the recipient of a prestigious five-year National Science Foundation Career Grant. The funding will further his research on gene sequencing.

Javed Mostafa, associate professor of informatics (IUB), recently received funding for a project titled "Serving NCREL Data Using SIFTER Technology." The project is funded by North Central Regional Educational Laboratory.

Snehasis Mukhopadhyay, associate professor of computer and information science and associate director, Bioinformatics Program (IUPUI), is participating in a three-year grant from the National Institute of Health Indiana Program of Excellence in Biomedical Computing. Mukhopadhyay is also participating in a grant from the National Science Foundation titled "ITR/IM: An Active, Personalized, Adaptive, Multi-format Biological Information Delivery System." The three-year grant is part of the

National Science Foundation Information Technology Research Initiative.

Anna McDaniel, associate professor of nursing and director, Health Informatics Program (IUPUI), received a grant from Robert Wood Johnson to conduct research on "An Integrated Computer-Based System for Treating Tobacco Foundation Dependence in a Medically Indigent Managed Care Population." She also received funding from the Walther Cancer Institute/Behavioral Cooperative Oncology Group to develop and test an integrated smoking relapse prevention system.

John Paolillo, associate professor of informatics (IUB), received a grant from UNESCO to explore multilingualism on the Internet. The project is known as the B@bel Initiative.

Edward Robertson, associate dean and professor of informatics (IUB), and **Mehmet Dalkilic**, assistant professor of informatics (IUB), are part of a team to receive National Science Foundation funding for "Information Dependencies."

Academic-industrial collaborative research in the 21st century: *Lessons for Indiana*

by William Aspray, Professor, School of Informatics

This article is adapted from a keynote presentation given at ConnectTech in January 2003.

Several events have had a major impact on the nature of university-industry collaboration over the past 20 years. The Bayh-Dole Act of 1980 increased the incentives for universities to transfer knowledge to industry. Advances in the scale and stakes of biomedical science have made industry-academic collaboration more attractive but also more difficult. And university central administrations have come to believe that intellectual property can result in a major revenue stream for the university. This article considers some of the issues that surround academic-industrial collaboration in the new millennium, with hope that these lessons can be applied in Indiana. The focus is on pointing the reader toward some of the principal literature on the subject and on summarizing some of the basic findings in this literature.

It is clear that there are no “magic bullets” in making academic-industry collaborations more effective. That famous American philosopher, Woody Allen, summed up the situation pretty well when he said that 80 percent of success is showing up. One might amend Allen’s aphorism by requiring that the parties have the correct attitude and expectations. There seem to be two mentalities about academic-industry interaction. One is oriented toward protection of intellectual property — and thus emphasizes strict contracts, limited access, barriers to interaction, and insistence on short-term financial payback. The other approach attempts to promote interaction. It may increase the risk that an individual company will lose control over some particular piece of intellectual property, but it makes for a more innovative climate. It is a strategy that trades short-term for long-term payoff.

Before turning to some of the major issues of academic-in-

There seem to be two mentalities about academic-industry interaction. One is oriented toward protection of intellectual property. ... The other approach attempts to promote interaction.

dustry collaboration and some of the recent recommendations about how to improve it, we will consider some of the scholarship by social scientists about what makes high technology thrive in a particular geographic region. This is a literature that I am teaching to my graduate students in the School of Informatics

at IU Bloomington. A great body of literature appeared at the high point of the dot-com craze. One wonders how the scholarly literature would differ if written today, after the dot-com crash and the general economic downturn. Books we are reading in class include Chong-Moon Lee et al., *The Silicon Valley Edge*; Martin Keeny, ed., *Understanding Silicon Valley*; and David Rosenberg, *Cloning Silicon Valley*. However, let me consider here only a single issue covered in one of the pioneering books on high-tech regional development, *Regional Advantage*, by AnnaLee Saxenian. She is an urban geographer who teaches in the School of Information and Management Systems at the University of California–Berkeley, which is Berkeley’s equivalent of our own School of Informatics.

Saxenian’s book provides a detailed comparison of Route 128 in Massachusetts to Silicon Valley in California. It seeks to explain why Silicon Valley was so much more successful in recent years in high-tech development. The discussion here will focus only on Saxenian’s analysis of the role of higher educational institutions. One might expect that the two regions would be quite similar, given that Route 128 had Harvard and MIT nearby, while Silicon Valley had Stanford and Berkeley. Unfortunately for Massachusetts, the mere presence of these prestigious institutions was not sufficient.

Saxenian cites a number of ways in which the higher educational system contributed to the advancement of high technology in Silicon Valley. Stanford increased enrollment in its Honors Cooperative Program — a program that enabled working students to enroll in university courses and degree programs. The co-op program was especially beneficial to small companies in Silicon Valley in that it enabled these companies to attract top talent through a form of continuing education that these companies could not afford to provide in any other way. With the growth of the local high-tech economy, Berkeley decided to expand its small graduate program in electrical engineering — to the point that it was as large as those at Stanford and MIT — and built up strengths in topics of special interest to Silicon Valley firms, notably computer science and semiconductors. Stanford formed an Industrial Affiliates Program that effectively promoted collaborative research among faculty, academic departments, and outside companies.

The California state university system and the network of community colleges also were an important factor. By the 1970s, San Jose State University was training as many undergraduate electrical engineers as Stanford or Berkeley, thus adding much-needed capacity to the academic system. There were six excellent community colleges in the area, and they were particularly responsive to the requests of local industry — teaching courses the companies requested, and often teaching them on company premises. Foothills Community College initiated the first two-year degree program in semiconductor processing in the United States, while De Anza College established a strong electronics

program that had particularly close ties to local industry. Local firms provided experts to help the community colleges develop their curriculum, and many of the industry experts taught part time at these colleges. A local high-tech company, Tandem, donated \$1 million of computer equipment to Foothills so that the school could triple the number of students in their computer courses.

Saxenian contrasts this situation in Silicon Valley with the much weaker collaboration between the academic and industrial sectors in the Route 128 region. Harvard had no interest in building ties with local industry. MIT refused to offer anything other than their traditional, full-time classes and degree programs — making it much more difficult for local engineers to continue their education there while working. MIT was 20 years later than Stanford at opening a licensing office to encourage commercialization of technology developed at the university. MIT's Industrial Liaison Program had fees that were five times as high as those charged by Stanford. This meant that only large, established firms, such as DuPont, Eastman Kodak, and Standard Oil, could afford to join the MIT affiliates program. The program was priced out of reach of the small, startup firms. Neither Harvard nor MIT welcomed industrial scientists and engineers at their technical colloquia, nor did they encourage industrial collaborations. Even the engineers at Digital Equipment Corp., an MIT spin-off located in the Route 128 region, turned to Stanford and Berkeley more often than MIT or Harvard for intellectual interchange. The community colleges and state universities in Massachusetts were small, under-funded, and lacking in status. Industry did not generally establish ties with the local community colleges; they made few monetary or in-kind contributions to improve the schools; and, in fact, the Massachusetts High Tech Council worked indirectly against the public higher education system by single-mindedly pushing for tax cuts. Thus one can see that there are many factors that must be aligned in order to make the higher educational system work as an asset in regional high-tech development. Silicon Valley achieved this; Route 128 did not.

Having considered this important case study, let me now turn to some of the major issues in academic-industrial collaboration today, and some of the recommendations that have been made recently. Although there have been a number of recent studies, I will consider only one in detail. The Business-Higher Education Forum, which is a partnership between the American Council of Education and the National Alliance of Business, published a report in June 2001 titled *Working Together, Creating Knowledge*.

The report first focuses on various kinds of conflicts that arise in academic-university interactions. It identifies and differentiates three kinds of conflicts. Financial conflicts of interest arise when a scientist's private financial interests and research converge in such a way that the scientist may have difficulty making unbiased decisions about the research. Conflicts of commitment arise when outside research interests conflict with time spent on the individual's full-time duties as a faculty member. Conflicts of mission occur at the institutional level, when universities become potentially beholden to a company through their financial stake in it, such as investments in startup firms of equity accepted in lieu of royalties.

The report offers four recommendations related to these kinds of conflicts. First, it is vital to maintain core values of academic freedom. Second, industry funding cannot and should

not be viewed as a replacement for long-term public funding of basic scientific research. Third, universities and companies should seek transparency, clarity, and consistency in identifying actual and potential conflicts of interest. Fourth, all research participants should continue their adherence to the scientific method in order to preserve public trust for academic research.

Three of the main issues of academic-industry collaboration — confidentiality, indirect costs, and intellectual property — are also addressed in the report. The study points out that there is a realistic tension between the ability of researchers to discuss and publish their results, and legitimate fiduciary responsibility of companies to their shareholders to protect the value of their investments. In this area of confidentiality, the forum recommends reasonable publication delays (of 60 to 90 days) so that the company can secure intellectual property protection. On the matter of indirect costs, the report points to a RAND study, which showed that indirect costs paid by companies cover only 70 to 90 percent of university research costs (over and above researcher salaries and costs of new materials). The forum recommends that companies pay the federal indirect cost rates, except in special circumstances such as a company joining a university research center. On intellectual property, the report mainly lamented how thorny are the issues of ownership, value, and use of intellectual property arising from industry-sponsored

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Professor William Aspray gave the keynote address at ConnectTech.

academic research — especially in the biomedical area. The forum recommends that collaboration partners try to resolve commercialization terms quickly (so that they do not interfere with the everyday business of research), or if this is not possible, defer negotiation of royalty rates until the research is completed.

One of the most interesting aspects of *Working Together*,

... Some companies that are sponsoring university research are demanding licensing rights to all background intellectual property. ...

Creating Knowledge is its discussion of the emerging issues of background rights and research tools. Apparently, some companies that are sponsoring university research are demanding licensing rights to all background intellectual property produced in the university departments that are receiving the company funds, even though this background intellectual property may have been developed using other sources of funding, such as federal grants. Research tools are highly complex entities that require research in order to develop. One question concerns whether these tools should be licensed broadly or exclusively to a single company (often a faculty startup). A related issue concerns “reach-through royalties.” These are royalties sought by the owner of the research tool on any product developed through the use of the tool. The report contributes by identifying these emerging issues, but it could not identify examples of best practice in the case of either background rights or reach-through royalties at this time.

The report concludes with a set of recommendations about best practices for universities and companies as they try to work together and create knowledge. These best practices are listed in tables A and B.

There are some other studies that are worth a brief mention. Computing Research Association, the educational nonprofit in Washington, D.C., that represents the doctoral-granting departments of computing-related disciplines in the United States

Table A: University best practices

- Find ways to better coordinate and co-locate university offices of Research Administration, Technology Transfer, Technology Licensing, Development, Corporate Relations.
- Enhance communications with industry partners.
- Find better practices for abiding with corporate timetables.
- Provide better and fairer credit towards tenure and promotion for faculty involvement in industrial collaboration.

The Business-Higher Education Forum, Working Together, Creating Knowledge (2001)

and Canada as well as the industrial and government research laboratories, has been working on model contracts for various kinds of academic-industry joint activities. These include such activities as student summer employment in industry, equipment gifts from companies to universities, and joint research projects. None of the model agreements have been completed yet. However, the CRA has published guidelines for how to manage entrepreneurship within a computer science or computer engineering department. (See David Patterson and Lawrence Snyder, “Commercialization Oversight for Computing Research Departments,” at www.cra.org/main/cra.pubs.html.)

Retaining our technically trained college graduates has been a serious issue for Indiana. Two recent studies by the Southern Technology Council address this issue, not for Indiana, but for a southern tier of states that have a similar problem. (The studies are Louis G. Tornatzky et al., “Where Have All the Students Gone? Interstate Migration of Recent Science and Engineering Graduates,” Southern Technology Council, February 1988; and Louis G. Tornatzky et al., “Who Will Stay and Who Will Leave?” Southern Technology Council, May 2001.) Results from the more recent study, which are disheartening, are shown in Table C. Tornatzky recommends that this issue be treated as a net-flow recruitment and retention issue rather than as a retention (brain drain) problem. Thus, instead of aggressively giving college scholarships to in-state high school graduates, use the funds instead to support lower out-of-state tuition to attract a larger body of technical students from around the world.

Tornatzky’s group has also conducted another relevant study (Louis G. Tornatzky et al., “Innovation U: New University Roles in a Knowledge Economy,” Southern Technology Council, Southern Growth Policies Board, 2002). They have provided case studies of best practices and cultures from 12 research universities for promoting economic development in their state and communities. One of the schools studied is Purdue. (The

Table B: Industrial best practices

- Obtain top-level executive support for university collaboration before starting effort.
- Develop internal matching funds programs to encourage culture of external research.
- Choose primarily projects that are non-proprietary and of longer lifespan than the typical project that is conducted within the corporate research lab.
- Select projects where both sides benefits from the results, and both sides are reasonably equal partners in terms of control and investment.
- Involve graduate students in projects as a way to preview them for employment.
- Identify a management process that overcomes the frequent personnel changes that occur in collaborative teams.
- Identify a champion within the company with authority who is dedicated to making the partnership work.

The Business-Higher Education Forum, Working Together, Creating Knowledge (2001)

Table C: Who will stay and who will leave?

Graduates are more likely to end up employed in-state if they:

- Are foreign students subsequently employed in the United States;
- Majored in a field other than engineering or physical science;
- Were older than average for their class;
- Attended a large college in a large metropolitan area; or
- Attended college in a large state

Graduates are less likely to end up employed in-state if they:

- Graduate in engineering and physical science;
- Have a high grade-point average;
- Graduate from a research-intensive institution;
- Graduate from a historically black college or university; or
- Command an above-average starting salary upon graduation

Tornatzky et al., "Who Will Stay and Who Will Leave?" (2001)]

complete list is: Georgia Tech, North Carolina State, Ohio State, Penn State, Purdue, Texas A&M, Wisconsin, Virginia Tech, California–San Diego, Utah, Carnegie Mellon, and Stanford.) Topics include: external partnerships, technology transfer, industrial extension and technical assistance, entrepreneurial development, industry education and training partnerships, and career services and placement.

In addition to studies, one can look for examples of best practice. One model of interest is the University of California Discovery Fund, which enables industry to invest in research at the University of California. The fund provides \$60 million per year in state, industry, and university funds for university-based research projects in biotech, communications and networking, digital media, electronics manufacturing and new materials, and information technology for the life sciences. University of California faculty can receive up to four years of funding. Industry receives leveraged research and development investments (for example, through state matching funds), intellectual property rights, federal and state tax credits, and access to faculty and students.

We are consciously setting out to give a real-world orientation to this new academic discipline.

Let me close with a few comments about the School of Informatics, which is building close ties between the university and industry. We are consciously setting out to give a real-world orientation to this new academic discipline. In the organizational informatics course, required of all our majors, there are approximately 10 guest lecturers each semester. These guests explain to the students how information technology is incorporated into different kinds of organizations, what technical and business challenges surround the use of this technology in their discipline, what people who work in IT in that application area really do, and what the intended and unintended consequences of the use of IT in that organization or industry are. Our

capstone course, required of all students in their senior year, is organized around their carrying out a project involving information technology development based upon real-world specifications. While doing their technical work, they learn about economics, project management, business constraints, and time management and other non-technical factors that will affect them in the real world.

There are other contacts with the business world as well. Almost every year we have at least one distinguished member of the business community teach a course for us in which they pass on lessons from their work experience. Internships for our undergraduate and graduate students during the summer and school year give our students some real-world experience. We organize a colloquium series, bringing in more than 20 academic and industrial speakers each year. We are also in the process of building research partnerships

with companies, for example, using our skills in data mining and data representation to turn large masses of commercial data into strategic intelligence, and to give our students and faculty experience with the real-world problems of massive and “dirty” data. We continue to look for other opportunities to build ties between the academic and industrial worlds and hope that our program will become one that is seen as a best practice in the way to foster academic-industrial interaction.

About William Aspray

William Aspray joined the Indiana University School of Informatics as a full professor last fall. He teaches and conducts research in the areas of organizational, social, and mathematical foundations of informatics.

Since 1996, Aspray has served as executive director of the Computing Research Association, an educational nonprofit that represents the doctoral-granting computing-related academic organizations and industrial and government computing research laboratories in North America. The CRA is the nation’s premier organization for computing research. Aspray now serves on the CRA board of directors.

Aspray holds an MA in mathematics from Wesleyan University and an MA and PhD in history of science from the University of Wisconsin–Madison. His previous experience includes teaching at Williams College, Harvard University, and Rutgers University, and research and management positions with two organizations of international standing: the Charles Babbage Institute (a historical research center) and the Institute of Electrical and Electronics Engineers. He has published widely on both historical and contemporary issues facing the computing research community and is well known as co-author of *The Supply of Information Technology Workers in the United States* (1999, with Peter Freeman). Aspray’s historical writings include *John von Neumann and the Origins of Modern Computing* (MIT Press, 1990) and *Computer: A History of the Information Machine* (Basic Books, 1996, with Martin Campbell-Kelly, commissioned by the Sloan Foundation).



Grants and research

Partnership leads to \$3 million Lilly Endowment Grant

Since its founding in 1969, IUPUI and its array of professional programs have focused upon the health sciences and improving the quality of life of Indiana's citizens. The schools of Medicine, Nursing, Dentistry, and later Allied Health Sciences all had missions that included health education. The subsequent additions of the Purdue schools of Science and Engineering and Technology into an integrated urban university brought the physical and life sciences to the campus. The presence of other schools with missions related to the arts and humanities was developed over the next 33 years.

Within this framework, the School of Informatics was founded in 1999 with a vision that would embrace the creative uses of information technology clearly focused upon the core missions of the individual campuses where it developed its programs. Not only in research and teaching, but also in civic engagement, this has come to be a practice that has benefited both the school and the communities that it serves.

In 2002, following nearly two years of discussion and planning, a proposal was submitted to the Lilly Endowment that would provide funding to completely renovate the instructional spaces, legacy systems, and enhance the curriculum of the Ruth Lilly Health Education Center. For the School of Informatics and its New Media programs (see <http://informatics.iupui.edu>), partnering in this proposal was a natural extension of its mission and the core mission of the IUPUI campus. With the added collaboration of the School of Allied Health Sciences and its support of the mission of the Health Education Center, a natural synergy existed to bring a unique set of partners together to enhance the total learning environment of the center and to extend its reach to an even broader constituency.

Completed in 1989, the RLHEC (see www.healtheducationcenter.org) is a nationally recognized not-for-profit center for excellence in health education for young people. The center takes seriously its unique role in health education in Indianapolis and central Indiana. It offers 33 different health education programs within seven content areas — general health; nutrition; human growth and development; drug education; fitness; mental health; and disease prevention and control, as well as other custom-tailored programs. The center reaches a diverse target population, serving pre-kindergarten children through senior citizens. Since its founding, more than 932,000 people have participated in its programs, and elementary school children make up the majority. Last year more than 80,000 children from 60 counties and 106 school systems took part in these programs — including 44,000 from Marion County. The goal in provid-

ing effective, age-appropriate health education is to build within individuals an arsenal of information and skills that can be used to make life-long, health-conscious decisions resulting in better health and a sense of well-being. These health education programs complement school-based health education, health care, and prevention programs.

Within this context, in late 2002, the Lilly Endowment awarded a grant totaling \$3 million to the RLHEC for the "Health Education for the 21st Century" project. Within the context of that grant, \$1 million awarded to the School of Informatics and its partnership with Allied Health Sciences to bring the essential resources required for the implementation of

"The health of the people is really the foundation upon which all their happiness and all their powers depend."

— Benjamin Disraeli

the grant. Additional relationships were concurrently developed with the Indiana Humanities Council's "Smart Desktop" (www.ihc4u.org/desktop.htm), the IU Pervasive Computing Laboratories (www.vis.iu.edu/), and the Polis Center (www.polis.iupui.edu/polis/home.htm) to bring discussions of curricular integration, visualization tools, and geographical data collection techniques to the initiative. Local media firm Sonar Studios (www.sonarstudios.com/) also contributed significantly to these conversations.

A significant component of the project will be the implementation of a high-speed network that will connect the center to Indiana University's I-Light high-speed optical fiber network (see www.iupui.edu/~ilight/factsheet.html). This connectivity will facilitate the research, development, and delivery of innovative health education applications, provide for advanced Internet videoconferencing and communication, and contribute to the ongoing national and international dialogue about K-12 health education. The center has also been designated a nonprofit affiliate member of the Internet2 (see www.internet2.edu) community through its partnership with IU. As a participant in the health sciences and K-20 working groups, it has been designated a site location for the upcoming Internet2 fall 2003 applications conference to be held in Indianapolis.

Over a three-year period, each of the more than 30

educational programs offered at the center to students from pre-school through high school will be upgraded utilizing the expertise of the combined IUPUI-RLHEC team. The latest in digital technology will be installed in the eight teaching theaters. Seven of these theaters seat 60 and feature larger-than-life exhibits, audio/ visual aids, and life-size props and models. The auditorium seats 116 and features a large video screen and Internet access. Not only will thousands of students be impacted on-site, but additional thousands will have access to programs through outreach and Web-based instruction. In addition to the already established programming being radically redesigned, new programs focusing on emerging health education concerns will be created, further expanding opportunities for the center to impact even larger audiences from a much-expanded geographic area.

RLHEC President Julian T. Peebles said in a recent conversation, "This is the singularly most important event in furthering health education in central Indiana since the RLHEC opened its doors in 1989. The grant will combine the intellectual power of the School of Informatics with the health education expertise of the School of Allied Health Sciences and the teaching excellence of the RLHEC. The innovations in teaching methods and technology made possible by this grant will not only impact health education in Indiana, but perhaps also will provide a template for future education in general."

Marjorie Meyer, chair of the board for the RLHEC, also said, "The technology that this money will buy, put in the hands of some of the most creative educators in the city, will provide treasured experiences for the more than 88,000 children and adults who come to the center for health education programs each year. With this grant from the endowment, the impact on our audience will increase dramatically, enabling us to measurably increase the difference we're making in the lives of the children we serve."

School of Allied Health Sciences Dean Mark S. Sothmann observed, "This partnership between informatics, the academic health sciences and RLHEC will be vital in bringing the very best health education information to Indiana's youth. It will propel the already outstanding curriculum of the center into the forefront of nationally recognized centers of excellence in health education."

In conclusion, it is my observation that this project has the potential to define new ways of working between academic institutions and the publics they serve. With IUPUI's focus on informatics and new media, the health sciences, and civic engagement, ideal conditions have developed to shape this core initiative. RLHEC is a wonderful organization committed to an absolutely essential goal. With the support and generosity of the Lilly Endowment, thousands of young people in Indiana will benefit from this grant and lead healthier and happier lives based on the latest information concerning fundamental health



Quarter Moon Photography, Tony Clevenger

Mark Sothmann, left, Darrell Bailey, and Julian Peebles discuss the potential impact of the Lilly Endowment Grant on health education in central Indiana.

issues so essential for a productive and economically prosperous society.

— Darrell L. Bailey, EdD
Executive Associate Dean

About Darrell L. Bailey

Darrell L. Bailey is the executive associate dean of the Indiana University School of Informatics, IU's first new school in nearly 30 years. Holding academic appointments as associate professor in both the School of Informatics and the IU School of Music and an adjunct appointment in the IU School of Nursing, he was also the founding director of the Informatics New Media Program and its undergraduate and graduate degrees at IUPUI. Most recently, his work has focused on building alliances and partnerships with the many university schools and programs that are participants in the growth of informatics and also on building ongoing relationships with business and government. He has led the academic design team of the new Informatics and Communications Technology Complex at IUPUI that will also be the home of the global network operations center for the Abilene backbone and other high performance networks. In 2002, he completed six CD-ROMs of synchronized analysis, commentary, bios, and interactive listening questions of 89 classical works of the music of western civilization to support the second edition of the Hoffer textbook *Music Listening Today*. As principal investigator of the Ruth Lilly Health Education Center project, he is bringing educators, scientists, and practitioners together to discover innovative ways for enhancing health education.



Bailey



Class flying high after visiting ATA hangar

by Crystal Foutz

Mark Hill, founder and CEO of Baker Hill and adjunct professor of informatics, taught informatics students at IUPUI last fall. His course, Applied Information Technology in Industry, was designed to survey how and why IT is used for various industries. Distinguished guest speakers met with students to discuss the strategic use of software applications in their industries and to challenge students to consider the financial implications of their choices.

Students met weekly with a number of respected speakers from Indiana's technology industry, who volunteered to give informatics students insight into their own business experiences and knowledge. Such individuals as Roy Dunbar, CIO of Eli Lilly; John Gibbs, executive vice president and co-founder of Interactive Intelligence; and Victoria Thompson, CIO of Superior Essex, volunteered to teach these students about the industry they will soon be facing.

In late September, the class was privileged to meet with Glenn Baker, vice president of information services at ATA. Baker spoke about return on investment, overall cost, and customer relationships. Students considered how these factors determine the fate of projects in this economy. Baker also reviewed a set of case studies with the class.

Student groups presented their opinions on the case studies they had been assigned. Based on these

“sales pitches,” the class voted on what action to take in each case — to continue, stop, or scale back. It was a fun and interactive exercise that gave each student the chance to see what it feels like to be on a committee of high-ranking individuals in a large company, making decisions about its future.

Baker took the class on a personal tour of the ATA hangar. The informatics students were in awe of the hangar and its contents and quickly realized the relevance it had on their class. Kevin Allen and Wes Griffin showed the students the ins and outs of the latest technological advancements being used in the hangar, including wireless eye-sets that allow workers to look at online documentation through a miniature view screen while they work. They also learned about tracking devices in the planes that monitor every inch of the massive machines. Students were even able to try out the eye-sets for themselves.

The visit to ATA was only one of many extraordinary opportunities available to students in the class. The chance to receive instruction from so many technology leaders had a tremendous impact.

Crystal Foutz is a recent graduate of the New Media Program. She works for IU as a project manager in Multimedia Development Services. She is now enrolled as a New Media Program graduate student.

New media student interns with Indianapolis Colts



Josh Esslinger will graduate in May with a bachelor of science in media arts and science from the School of Informatics on the IUPUI campus. Last spring, A.J. Macht from the Indianapolis Colts Organization contacted the New Media Program in search of an intern. Esslinger submitted his portfolio, was selected for the project, and began his internship last June.

Working in the New Media Department at the Colts Complex, Esslinger has had the opportunity to learn more about traditional media forms and work in-depth with many different software applications. He has been involved with a Web TV show that is produced weekly during the regular season; has worked with graphic design for scout ads, game day programs, and sponsorship and promotional materials; and has been actively involved in the regular maintenance of the Colts Web site (www.colts.com).

The internship has been a great learning experience for Esslinger, and he has enjoyed his time with the Colts. After graduation, he will be seeking employment and is seriously considering pursuing a master's degree in the School of Informatics New Media Program.

A new beginning for an IUPUI undergraduate

Harlon Wilson is an undergraduate student in the School of Informatics New Media Program who has an extensive background in business and information technology. He has served as the administrator for adolescent medicine at the Riley Hospital for Children and as a management consultant for King Shots Inc. While working at Bradford Scott Data Corp., Wilson created and managed the Electric Data Interchange Division. His many accomplishments at Bradford Scott include serving as co-chair of the research and development team, directing the Web development committee and company Internet initiatives, and creating and implementing the e-commerce, networking, Web development, research and development, and medical billing training programs for internal and external partners and clients.

His most recent position was as the director of practice management technology for RealMed Inc., where he was responsible for creating and directing the Practice Management Integration Department. Beginning at square one for this project, Harlon created job descriptions, organized a matrix for national deployment initiatives, scouted, hired, trained, and empowered professionals with skill sets in programming, regional management, project management, and customer account management for a four-state region. Wilson served as a mentor to project teams, provided solutions to complex problems and successfully devised strategic planning in collaboration with the national sales director, resulting in increased sales and the rapid deployment of software.

Much of Wilson's success can be attributed to his optimistic and enthusiastic outlook. He takes an "act-as-if" approach to overcoming obstacles and achieving goals. He believes that it is important for each person to dream and set goals. Beyond that, if the person then begins to "act as-if" the dream is a reality or the goal has already been attained, there will be a positive change in attitude that will result in what amounts to a self-fulfilling prophecy. He has used this philosophy to empower and motivate himself and many people with whom he has worked.

This mind-set is also evident in the community service work Wilson has been involved in. Through his association with King Shots Inc., he worked with IdentiChild, a nonprofit company created to provide community events designed to improve child health and safety and educational services for parents in Indiana. The program had reached a point of stagnation when Wilson stepped in as its director. Through associations with health care professionals from Riley Hospital, Wishard Community Health Services, and the Marion County Health Department, he acquired corporate sponsorship and reenergized the program. The result was the development of events where free immunizations were offered as well as education about child health and safety. In a one-year period, the program provided approximately 20 events involving thousands of children from the Indianapolis area. Although he is no longer working with IdentiChild, Wilson is still involved with the Indiana Immunization Coalition.

Wilson was introduced to another project, the City of Music, through a lecture given by Jack Gilfoy in a History of Jazz class at IUPUI. He is currently serving as a consultant and chair of the advisory board to this local for-profit organization and its not-for-profit subsidiary, the Artist Works Foundation. The City of Music works to promote national talents in music and the arts. Talented musicians are offered a performance venue through a weekly radio show that recently received national syndication. Once funding is secured to promote the national syndication, the City of Music will begin to shift some of its focus to the Artist Works Foundation, whose goal is to bring spiritual healing resources to the community via art and music programs and workshops. More information about this organization can be obtained by visiting its Web site at www.cityofmusic.com.

Possibly the activity that gives Wilson the greatest sense of pride is his involvement with the IUPUI College Preparatory Initiatives Program. This grant-funded program began four years ago in conjunction with IPS School 11 and provides mentors to students who are considered to be at high risk educationally. During that time, the program has followed the same group of students as they progressed through school. The mentors act as tutors to help the students with their schoolwork and to provide some of the consistency and stability needed for the children to experience success. In addition, they plan educational activities for the students. Wilson is paired with a student he describes as "awesome — with tremendous potential." According to Wendy Behnkendorf, site coordinator for the program, "Harlon is a strong component in the program. Not only is he very skilled in working effectively with his mentee, he provides support to the other mentors as well."

What prompted this person to seek out a college education? In answer to that question, Wilson tells us that he experienced *metanoia*, a fundamental change of mind or turning around to face a new direction. He had come to a point in his professional life where a choice was inevitable. As Wilson put it, "I had to decide whether I wanted to take money I had saved and invest it in a business or invest it in myself." He chose the latter.

Wilson was not at all convinced that he would be successful as a student. But the IUPUI sophomore's achievements exceeded his expectations in this area. He has discovered that he has a passionate interest in the study of the combination of sociology and technology and has found that the School of Informatics is the perfect place to cultivate that interest.



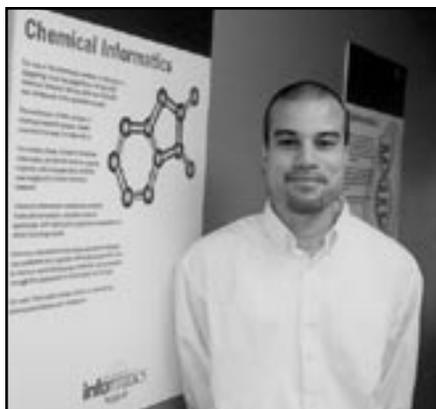
Wilson

Kenrick Vidale receives Daylight Innovation Fellowship

Recipient of the prestigious Daylight Innovation in Chemical Informatics Fellowship, Kenrick Vidale found his way to IU's School of Informatics via St. Croix and Purdue University.

Born in St. Croix, Vidale attended Florida Agricultural and Mechanical University, where he studied molecular biology. While at FAMU, he worked in a carbohydrate research laboratory synthesizing potential anti-cancer and anti-viral nucleosides similar to azidothymidine and 5-fluorouracil. His research experiences also include two summer internships at Pfizer.

Vidale later attended Purdue University to earn a PhD in organic chemistry. His primary area of study was self-assembly. His main research goal was to synthesize and study oligomeric molecules that have the ability to assemble into tiny tubular structures. These structures are held together by hydrogen bonds similar to DNA, but the structures in his work were made up of six strands instead of two.



Kenrick Vidale, recipient of the Daylight Innovation in Chemical Informatics Fellowship, is enrolled at IUB.

After spending several years synthesizing the key molecules assigned to him, Vidale encountered a problem that eventually led him to informatics. He spent a lot of time studying the physical properties of the molecules using a variety of analytical techniques, and he was generating large amounts of data. Vidale experienced

difficulties managing the data and found the problem compounded by the difficult task of extracting useful information from the data. He soon learned about the School of Informatics at Indiana University, and he decided to pursue studies in chemical informatics.

Vidale's research interests are focused on scientific information management. First, he is learning the general methods of managing information. Second, he plans to study the ways for best managing scientific information. He is also interested in data mining, more specifically in the area of drug design. To complement this interest, Vidale is exploring in the use of scientific visualization to aid in decision making.

IUPUI informatics students partner with Delphi Automotive

Students from the New Media Program in the School of Informatics on the IUPUI campus recently had the opportunity to create interactive multimedia educational modules under the direction of faculty adviser Dan Baldwin. John Bergerson, Mike Booth, Nicholas Box, Deb Dillow, and Yvette Hopson worked with Delphi Automotive, Monsoon Audio to produce individual interactive Web-based applications to be used as informational, educational, and training tools.

According to corporate representative Ann Dechow, "The projects designed by IUPUI informatics students have enabled Delphi to deliver in-depth information about complex products to our customers in a creative, easy-to-understand, and user-friendly format. We believe that the development process has helped to enhance the skills of in-house personnel, and we plan to further leverage our relationship to grow skills in this field."



ABOVE — State Rep. Matthew Pierce, left, joined informatics student Paul White and Dean J. Michael Dunn for a luncheon hosted by Hoosiers for Higher Education.

RIGHT — Informatics students Troy Campbell and Chris Myzskowski joined Hoosiers for Higher Education for the annual visit to the Indiana Statehouse. The students met with their state representatives to urge support for the School of Informatics and Indiana University.



Hoosiers for Higher Education

IUPUI undergraduate has strong ties to community

Bryan Hudson will receive his bachelor of science degree in media arts and science on May 11. An Indianapolis native, he began his education in the Indianapolis Public Schools. After graduating from high school, Hudson attended Ball State University and also studied at the Herron School of Art before he was called to enter the ministry. Hudson received his bachelor's degree in theology from Rehoboth Christian College (now a part of Martin University in Indianapolis) in 1998.

Hudson's father and grandfather both served the Indianapolis community as ministers, and Bryan was mentored by his grandfather at the beginning of his study. Interestingly enough, his grandfather's church, Christway Baptist Church, was located on the site of the new Informatics and Communications Technology Complex, future home of the School of Informatics at IUPUI.

In 1982, Hudson founded the New Covenant Church and Ministries in Indianapolis, where he serves as senior pastor. In response to the need for communications resources by other ministers and congregations in the area, Hudson created Vision Communications in 1985. This firm offers graphic design services for a broad range of projects including print, radio, video, and the Internet.

Hudson has been involved with the traditional communications mediums of radio and television. He worked with "Rhema Today," was the former host of Trinity Broadcasting Network's "Praise the Lord," and has also hosted the "Firm Foundations" radio and television programs since 1997.

A prolific writer, Hudson has authored eight books and has served as editor for the *Issachar Journal*, a ministerial periodical. He published a newspaper, *Indianapolis Insight*, from 1996 to 1997 and is the current publisher of the *Urban Education Journal*. This quarterly magazine, first published in fall 2002, is designed as a resource for people interested in high-quality, child-centered education and educational reform.

Hudson takes a vital interest in education, particularly in the Indianapolis area. He is actively involved with the school choice movement and in the development and promotion of educational alternatives such as voucher programs, private schools, home schools, and charter schools. He is also a member of the Urban Christian Schools Coalition and is currently serving as vice president of the organization. In August 1989, Hudson received the Indianapolis Mayoral Day of Recognition Award for work with youth.

Hudson also volunteers as a member of the planning team for Vision Multimedia Workshop, a community empowerment program he founded through the New Covenant Church and Ministries in summer 2000. This program offers summer workshops to urban youth and pre-college young men and women focusing on the multimedia arts of writing, video, audio, and Web and print graphics. 2003 will be the fourth summer for the program that offers participants the opportunity to gain a better grasp of "real-world" multimedia content creation by providing access to high quality hardware and software.



Hudson

There are two three-week sessions offered each summer, during which students may choose to follow either a video production or graphic arts/Web design track. A number of high-profile guest speakers — including Andrea Morehead, WTHR 13 news anchor; Pastor Roger Holloway from the City Hill Church; Cheryl Adams, Fox 59; Clarence Reynolds, Fox 59; and Natalie Chavis, an attorney from the

law firm Chavis & Chavis — have shared their experiences with the students.

Students interested in the program must complete an application, and participants are chosen on the basis of experience with technology and desire. Although each student is required to pay at least a portion of the fee, or, as Hudson puts it, "make an investment in themselves," merit and need-based scholarships are both available.

Until summer 2001, Hudson had no plans to return to school. He wanted, however, to complete the degree he had begun at Ball State and Herron, both as a personal goal and to serve as an example to his own children and the many people he influences through his ministry. Realizing the rapidity with which the field of information technology is changing, Hudson also wanted to get back in touch with the most recent developments and to have an opportunity to learn from people engaged and in tune with the industry.

Hudson has found the courses in the School of Informatics New Media Program to be both challenging and exciting. The education he has received "has exceeded expectations and provided an extensive knowledge base and the credentials needed to be effective" as he develops a new phase of his ministry.

Hudson has plans to transition to a ministry focused solely on multimedia. He would like to serve as a resource for ministers and churches to help meet their publishing and media communications needs by offering design and production services as well as training.

For more information, visit these Web sites:

- *New Covenant Church and Ministries Indianapolis*
www.newcovenant.org
- *Vision Communications*
www.visionbooks.com
- *Vision Multimedia Workshop*
www.visionmultimedia.org
- *Urban Education Journal*
www.urbaneducationjournal.com



Jan Ashton, Mark and Karen Hill embrace spirit of philanthropy on behalf of School of Informatics

Each year, the IUPUI campus comes together for the Spirit of Philanthropy Luncheon and Awards Ceremony, during which recognition is given to individuals, corporations, and foundations who have contributed to various campus programs through gifts and voluntary services. This year, the School of Informatics honored Jan Ashton and Mark and Karen Hill with the 2003 Spirit of Philanthropy Award.

Jan Ashton became a member of Indiana University's medical records administration (now health information administration) faculty in 1969. She became an assistant professor in the Health Information Administration Program in 1978, and then was named associate professor and acting program director in 1996.

Ashton has authored numerous educational materials for teaching coding and has conducted workshops throughout the country on the subject of health care personnel. Her dedication to teaching and the health information profession was recognized by the Indiana Health Information Management Association, who awarded her with their Distinguished Member Award in 1985. In addition to this recognition, Ashton was the recipient of the Health Information Administration Program's first Elton T. Ridley Service Award and the School of Allied Health Sciences Excellence in Teaching Award.

Ashton retired from IU in 2000. She now sits on the HIA Program advisory board and continues to serve the program as an enthusiastic volunteer, keen advocate, and generous supporter. Since the Health Administration Program became part of the School of Informatics earlier this year, Ashton has given her time and expertise to building the school's relationships with HIA alumni and other constituencies and to planning the 50th anniversary celebration of the HIA program, held April 17.

"One of the best of many good things about incorporating health information administration into informatics," says Dean J. Michael Dunn, "was inheriting the commitment, experience, and friendship of Jan Ashton."

Mark and Karen Hill are co-founders of the Indianapolis based Baker Hill Corp., which provides software solutions to more than 1,000 financial institutions that are strategically focused on business banking.

Karen has an MBA in finance



Jan Ashton



Mark Hill



Karen Hill

from Indiana University and is chair of Baker Hill. Baker Hill began in 1983 when, Hill, a bank financial analyst, saw an opportunity to streamline the credit analysis process and built a software solution.

Mark Hill also has an MBA from Indiana University and is currently president of Baker Hill. He is a past president of both INITA (now Techpoint) and the Techpoint Foundation. In addition to being a member of the School of Informatics Dean's Advisory Council, Mark is an adjunct professor in the school, teaching Applied Information Technology in Industry.

Mark and Karen Hill have without hesitation stepped up with advocacy, leadership, and financial support to build the new School of Informatics. The Hills have made a recent generous commitment to the school that resulted in both new signage for the construction site of the Informatics Complex at IUPUI and the naming of the Mark and Karen Hill Instructional Laboratory at IU Bloomington.

Dean J. Michael Dunn says, "Karen and Mark's willingness to share their enthusiasm, success, and expertise has been invaluable to us." 



The Film Commune: A venture in independent

Three graduates of the New Media Program in the School of Informatics at IUPUI are founding members of an independent film organization known as the Film Commune.

Melody Cade, Jyvonne Haskin, and Jeff Hendrickson got to know each other when they were undergraduate students. During spring semester 2001, they were all working together on various class projects and did not want the collaboration to end with the semester. They shared an enthusiasm for filmmaking and, in association with other colleagues, began the organization as a support group with a simple, straightforward goal — to help each other as they worked to produce quality films.

While all three are interested in working in all areas of film production, including the corporate arena, commercial ventures, music videos, and original works, the independent film format is most appealing to them. It allows the artist to be involved in all aspects of the filmmaking process, from writing through the production and final editing. Independent films also give the producer more freedom of expression and more variety in terms of subject matter and the ability to use many formats. The genre allows for a more artistic, creative, experimental approach than traditional studio films.

As the group became more involved with filmmaking, their network of contacts grew and they developed an interest in the local scene and in promoting local talent. It soon became evident that film festivals play a major part in exposure for filmmakers, and, with this in mind, commune members began to organize a local film festival.

In late November 2001, the first Indy Underground Film Festival was held. The three-day event screened one feature film and a handful of shorts. By 2002,

the festival had grown and, with Haskin as program director, was able to present four feature films and 30 shorts. The festival is credited with having helped Indianapolis garner honorable mention in *Movie-maker Magazine's* annual list of the “Top 10 Cities for Independent Moviemakers” for two consecutive years. Ron Keedy, long-time supporter and promoter of independent filmmakers, served as a sponsor for the festival, and his theater, Key Cinemas, was used as the venue for the event.

Another venture for the Film Commune was the production of 13 episodes for Indie Scene TV. This late-night program airs on local ABC affiliate WRTV-6 and aims to promote area independent filmmakers, musicians, and artists. Cade assumed the responsibility of segment editor for the project, while Haskin served as segment producer. Other commune members were involved with the various aspects of the production.

Future plans for the Film Commune definitely include more film festivals. The Underground Film Festival is interested in submissions of all types of films, including shorts, documentaries, animation, music videos, feature films, and all types of experimental films. Submissions for the next festival are already being received, and members have been pleasantly surprised to find that the festival has attained a fairly high level of visibility in a short time. One major goal of the Film Commune is for the festival to eventually become fully self-supporting.

Webmaster Jeff Hendrickson manages the group's Web site (www.thefilmcommune.com), which includes bios of members, news events of interest to filmmakers, schedules of festivals and information for submission of work, and links to related sites.



MARCHING TO THE BEAT OF A DIFFERENT FILMMAKER — New Media Program alumni Melody Cade, from left, Jyvonne Haskin, and Jeff Hendrickson founded the Film Commune, an independent film organization.

Alumnus gets his hands dirty digging into Reverse911

When Brian De Kemper first heard of the informatics major, he was a computer science student who was considering CIS, though he wasn't really excited about a business degree. Then he took an introductory informatics class and knew he had found his best fit. Having an interest in computer and data networks, De Kemper focused on a telecommunications foundations cognate. "I found the major to be a very liberal one," says De Kemper, adding, "I thought it was a bold move to start a

whole new major as well as a new school."

Like many informatics majors, the newness and the sense of pioneering a new discipline was one of the major attractions to the school. But De Kemper's aspirations are grounded in real-life applications. He describes the senior capstone project: "It is definitely the most beneficial coursework through the School of Informatics. Working on real-world problems and actually getting our hands dirty with some projects is the best way to learn, in my opinion."

De Kemper now works as an installer/trainer/support engineer for Sigma Communications, a company that makes proprietary "interactive community notification software" called Reverse911 (see www.reverse911.com). These systems are used by municipalities like police departments to notify residents and municipal workers in case of an emergency or natural disaster. The threat of our national security in the last year has spurred a great interest in this type of system, and the company is growing quickly.

De Kemper and two other installers alternate while installing these systems, traveling anywhere from California to Maine. They coordinate these installations with the local telco companies to get the needed phone lines for their systems. When not traveling, he and his team are building new systems to send out to install and also are operating a support desk hotline for customers to call with questions.

De Kemper would eventually like to start working with wireless systems and in network administration, because he sees IP telephony as the next big thing in telecom/technology.



De Kemper

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New media alumna uses e-business, e-commerce strategies

The New Media Program at IUPUI ended a 15-year search by Amy Conrad Warner for the perfect graduate program. The interdisciplinary program provided an environment rich with IU and Purdue faculty, experienced professionals from design and IT backgrounds, courses that were theory based and applied, and a core curriculum that was inviting to the busy professional.

“Earning a master’s degree as a full-time working professional provided me with the environment to study emerging technologies, evaluate solutions, and turn my office into a working laboratory,” said Warner. The program introduced Warner to new concepts, technologies, software, and talent throughout the community and provided a framework through which real-world strategies could be proposed, tested, and implemented. “One of the by products of my master’s program was the conceptual design and development of our e-business and e-commerce solution.” When Warner entered the master’s program, more than 80 percent of the continuing education business was conducted through the U.S. mail, and it took five days to process enrollment requests. In 2002, the reverse is true; more than 80 percent of the business transactions are automated and conducted over the Web instantaneously at a fraction of the cost and reducing the turn around time from days to mere seconds.

Immediately upon graduating from the program, Warner shared her passion for e-business and e-commerce solutions between IUPUI and the state of Indiana. The knowledge of cutting-edge technologies and e-business strategies enabled her to establish the E-Commerce Division for the Indiana Department of Commerce and co-chair the Technology Group focusing on e-government strategies to improve service to citizens. Public universities and government have a great deal in common. Both are designed to serve the community, operate within an extensive bureaucratic infrastructure, and attract a workforce packed with human intellectual capital dedicated to making a difference. “I have always been committed to giving back to the community and making services more accessible to the public; IUPUI provides me with opportunities to both keep the university in touch with the outside world and leverage the assets of the university and positively impact change.”

While e-business and e-commerce are relatively recent developments in business, industry, government, and higher education, Warner is no stranger to technology applications in learning. She launched an undergraduate distance education program in 1990 with the financial backing of Annenberg Corporation for Public Broadcasting. “At an urban university, IUPUI students emerged as advocates for distance learning. To urban university students, time is money, and learners want to spend their time learning, not driving and parking.” In the ’90s, few households in

Indianapolis had a PC, but more than 88 percent of the households had access to cablevision. Warner and her distance-education working group were well aware of the emerging trends and development with the Internet and declining cost of personal computers. The team designed courses that could be launched as telecourses in the ’90s and began testing a hybrid approach to distance learning integrating video, e-mail, and CD-ROM technologies. The expectation was to develop content that could eventually reach learners — anywhere, anytime, at a fraction of the cost — over the Internet. This strategy proved to be successful and the courses were gradually repurposed over the years to include interactive technologies over the Internet. In fact, Warner and her Annenberg CPB development team were instrumental in launching the development of IU’s enterprise-wide online learning solution, Oncourse.

Warner is the executive director of the IUPUI Community Learning Network. As a leadership partner in a new IUPUI Online strategy, Warner brings more than 15 years of distance-education experience and oversees the development and delivery of nearly 100 undergraduate e-learning courses that 2,000 learners use each semester. Warner was selected as one of the *Indianapolis Business Journal’s* 40 Under 40 award recipients in 1998 and received a Women of Achievement in Science and Technology award in 2000 from Women & Hi Tech. She continues to support the development of the Educational Television Cooperative in Indianapolis and brings technology insights to the boards of the Heartland Film Festival, NPower Indiana, and CyberLearningLabs Inc.

Warner holds a bachelor’s degree in telecommunications from Indiana University Bloomington and a master of science in media arts and science from Indiana University, School of Informatics at IUPUI.



Warner

For more information, visit these Web sites:

- *Community Learning Network*
www.cln.iupui.edu
- *Women & Hi Tech*
www.womenandhitech.org
- *NPower Indiana*
www.npowerIN.org
- *Heartland Film Festival*
www.heartlandfilmfestival.org
- *CyberLearning Labs*
www.cyberlearninglabs.com

Helping people with technology at Peoplesoft

Informatics — Technology with a twist

Michael Hunsaker, BS'02, is an informatics pioneer. Now an alumnus running his own Web design business, he was a student in the school's first introductory courses. Like many early majors, he was intrigued by the idea of a major where he could explore how technology affects everyday people. He wanted more than a technical knowledge of computing — he wanted technology with a twist of history, social effects, and real-life business practice. It sounded so perfect to him that as soon as the first class was offered, he registered.

Wearing many hats

While a student at IU, Hunsaker joined the PeopleSoft team at IU, working on the implementation of the new software that integrates a number of IU's administrative applications. Hunsaker served on the project team to develop several pieces of financial aid documentation for the implementation. He also designed and developed applications using the Web and other technologies to help automate everyday processes used by fellow workers.

Hunsaker's experience on the PeopleSoft project gave him invaluable experience in management, deadlines, written and oral communication, security, and the use of new technology in the workplace. He learned that the ability to wear two hats (functional and technical) allows him to make valuable contributions to the success of a project. "Informatics was able to lay that foundation for me," says Hunsaker, "and now I am building upon that foundation every day."

Following his dream

Hunsaker is now following his dream and is launching his own Web design business. He came to the School of Informatics to learn more about the human side of technology, and he has remained interested in how technology can help people. "My heart has always been with helping people understand technology. I want my business to help companies build an online presence and take their business to a new level. For me, that is both exciting and rewarding."



Informatics Dean J. Michael Dunn congratulates Michael Hunsaker on earning his bachelor of science in informatics.

job hunting?



Visit the IU alumni online career center.

The Indiana University Alumni Association's online career center, launched on May 1, 2002, offers job searches, career guidance, and research services. It pulls job listings from more than 100,000 company job sites and provides more than 4 million job postings each day.

The site is at www.indiana.edu/~alumni/career/ and is available exclusively to members of the IU Alumni Association. Membership is open to all alumni and friends of IU. "For people looking for a job or considering a career change, the online career center in itself is worth the membership cost," says Ken Beckley, IUAA president and CEO.

The IUAA serves the university and its more than 440,000 living graduates through programs, services, and communications. One of the nation's largest alumni organizations, the IUAA strives to keep alumni engaged with their alma mater. For information, visit www.alumni.indiana.edu or call (800) 824-3044.

HIA alumna continues education in health informatics

Ruth Heinz, a recent graduate of the Indiana University Health Information Administration Program, received her bachelor of science degree in 2000. She is one of three HIA graduates who have been accepted to the health informatics master's program in 2002.

A native of Louisville, Ky., Heinz worked in a local bank for approximately 20 years. In the early '90s, the banking industry underwent some major changes and many institutions experienced downsizing. Although she had been promoted several times in her career, Heinz decided it was time to change directions.

She began with vocational testing and discovered that she possessed not only a predilection for, but also many skills that matched perfectly the health information management profession. At that point she began to seriously consider returning to school to earn a bachelor's degree in health information administration.

Although she felt unsure that she would be successful as a student, Heinz enrolled in classes. To her surprise, she became comfortable in the classroom in a very short time and also found that the vocational testing had paid off. HIA was where she wanted to be.

After graduation, Heinz had planned to move back to Louisville, but instead, she accepted a position at St. Vincent Hospital as an ICD-9-CM coder. She enjoys her work in the Health Information Services Department there due, at least in part, to the up-to-date technology available at the facility. St. Vincent made the move to scanning patient files in 1994, thereby eliminating paper records. All records are now stored electronically — Heinz cannot imagine returning to the former system.

Heinz seeks out activities that help her learn and grow in the profession. According to department head Londa Bechert, also an Indiana University HIA graduate, "Ruth is always looking for new things to do and new projects to work on." She takes advantage of the many continuing education courses offered by St. Vincent and serves on various committees at work.



Heinz

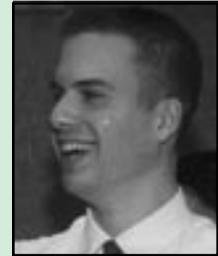
Heinz believes that professional opportunities will present themselves and that one of the keys to success is being prepared to take advantage of those opportunities. For her, part of that preparation will involve a continuation of her college education.

Heinz understands the need for professionals who can transform raw data into usable, accessible information. After her graduation from the HIA program, she began seeking a master's program that could offer education in emerging technologies and methodologies, particularly as they relate to information management and health care. She was delighted to discover the Health Informatics Program.

Although she is still in the early stages of the program, Heinz feels confident that the instruction she is receiving in health informatics will be very valuable to her professional growth. She will begin to use that education in the near future, as she will assume responsibilities as the Health Information Services Department privacy coordinator currently being developed at St. Vincent.

Heinz has passed the registered health information administrator exam and is RHIA certified. She is a member of the American Health Information Management Association and the Indiana Health Management Association. She accepted the position of treasurer for the Central Indiana Health Information Management Association in June 2002. 

Alumnus studies cyberspace law



Bill Marburger, BS'02, is pursuing a degree in informatics law at the University of Dayton School of Law. He is studying intellectual property and cyberspace law.

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Vision

Informatics studies the application of information technology to the arts, sciences, and professions, and its use in organizations and in society at large. The Indiana University School of Informatics has set as its goal to be nationally recognized as the foremost in the country for excellence and leadership in informatics programs, including undergraduate and graduate education, research, placement, and outreach.

Mission

We believe there is great need and opportunity for professionals trained in state-of-the-art information technology and science with an emphasis on creative human applications. There is an urgent need in our society for graduates with education and experience in informatics, particularly with interdisciplinary skills. The School of Informatics will be foremost in the country to graduate professionals with formal preparation in information technology with subject area expertise. To this end, we will:

- Lead the nation in the development of an innovative

and successful new curriculum for information technology and its applications;

- Educate students, including those who might not traditionally consider an educational path in technology, especially women and minorities;
- Encourage interdisciplinary research projects in the field of Informatics, focusing on distributed systems technology, information theory and information management, human factors and Human Computer Interaction, and study of the social impacts of information technology;
- Serve the state of Indiana by way of education, community participation, and collaborative research partnerships, thereby participating in the growth of an IT culture in the state and encouraging continued economic development;
- Produce graduates who become leaders in the growing information economy of Indiana and the world; and
- Develop synergistic relationships with industry to develop and advance research in information technology and its applications.



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Lights, camera, Informatics!

The School of Informatics introduced a new television ad in partnership with “Inside Indiana Business with Gerry Dick.” A number of students from the New Media Program in Indianapolis are featured in the ad: Deb Dillow, David Kopson, Lee Morgan, Ying Wang, and Harlon Wilson.

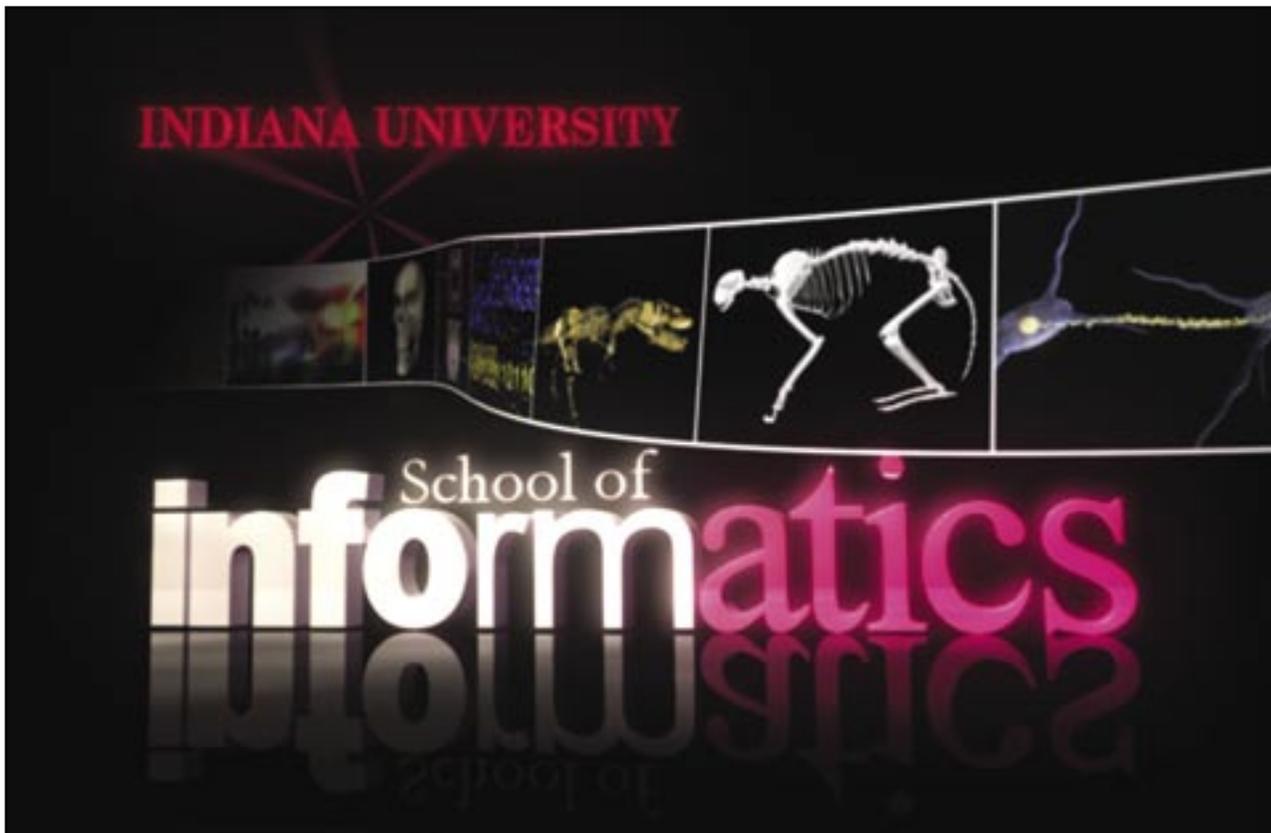
As the ad opens, student faces declare, “I am researching the human genome,” and “I am streamlining sales operations.” The ad concludes with an animation sequence designed and produced by the New Media Program’s Clinton Koch. The sequence showcases images from new media student projects. “I wanted to portray the idea that projects are a key cornerstone in informatics,” said Koch.

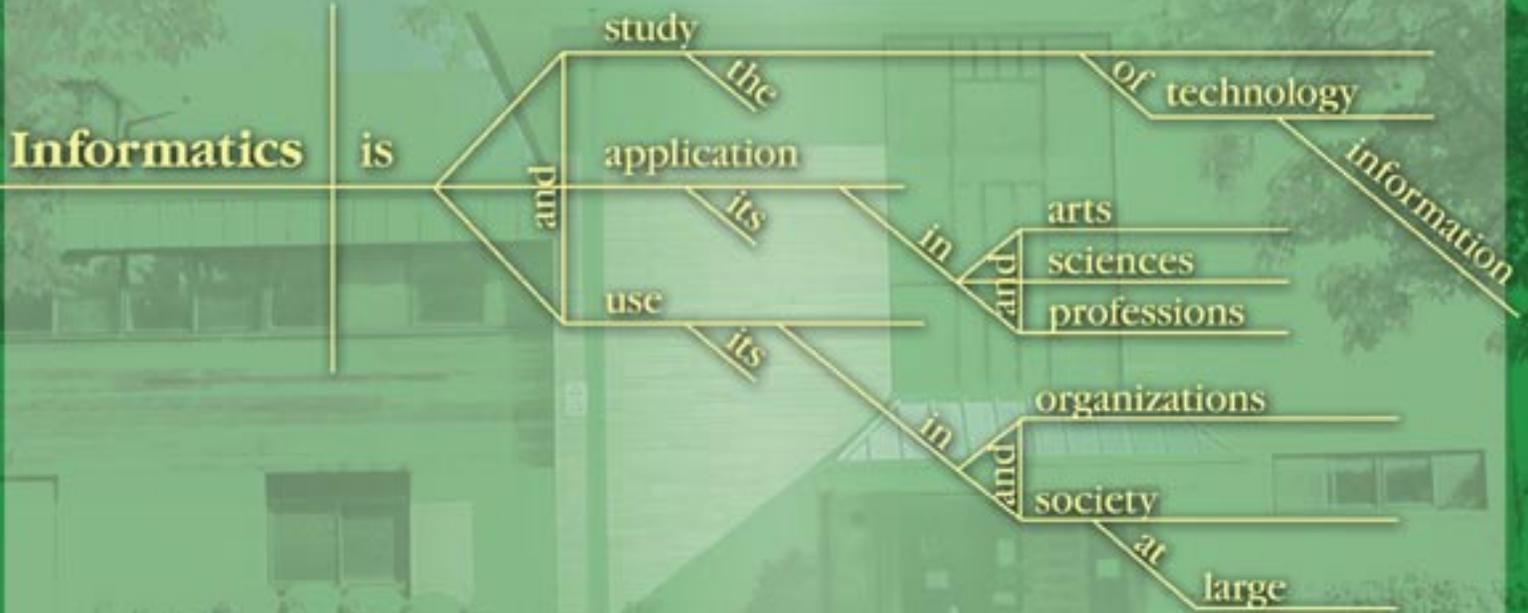


NEW MEDIA STUDENTS STAR IN INFORMATICS AD — David Kopson, left, is an undergraduate student, and Ying Wang is a graduate student.



MAKEUP! — A technician applies makeup to Ying Wang while Deb Dillow patiently stands on her mark in the background.





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