



200 YEARS



LUDDY

SCHOOL OF INFORMATICS,
COMPUTING, AND ENGINEERING



IUPUI

SCHOOL OF INFORMATICS
AND COMPUTING

ANNUAL REPORT **2018–2019**



OUR VISION

We shape tomorrow. We confront problems and create solutions. We expand information's impact and technology's potential. Together, our faculty, staff, students, and alumni make the world a better place—day by day, project by project, leap by leap.



LEADERSHIP

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Dean

Mathew Palakal

Senior Executive Associate
Dean

Erik Stolterman Bergqvist

Senior Executive Associate
Dean

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Senior Executive Assistant
Dean

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Assistant Dean for
Development

Lamara D. Warren

Assistant Dean for Diversity
and Inclusion



Since its establishment in 2000, the Luddy School of Informatics, Computing, and Engineering has built a reputation as one of the broadest of its kind. Our more than 3,000 students come from Indiana and around the world, and our unique blend of programs in informatics, computer science, intelligent systems engineering, information and library science, data science, and more create an interdisciplinary, collaborative environment where ideas thrive.

Our forward-looking school is a mélange, a salad bowl of disparate but related disciplines. That salad bowl provides us with a holistic taste of creativity and innovation while preserving and enhancing the taste of the individual components. As we have grown exponentially through our first two decades, we have maintained our core values with an open-minded view of tomorrow, one that has allowed us to stay on the cutting edge of technology while anticipating what the future holds.

We accomplished much during the 2018-19 school year. Our information and library science program was ranked second in the world behind only Harvard by the 2018 Academic Ranking of World Universities. Researchers at our school garnered \$16.1 million in grants from the National Science Foundation, the National Institute of Health, the National Cancer Institute, the Department of Defense, and other prestigious organizations, and our school ranks 12th in computer and information science research expenditures according to the NSF. A number of both graduate and undergraduate students have earned major awards for their research, and our faculty have been named fellows by such groups as the Association for Computing Machinery, and the Institute of Electrical and Electronics Engineers.

I'm thrilled with the direction of the Luddy School and am excited to present this annual report. Our School stands on the cusp of the next revolution in artificial intelligence, and our world-class faculty will only continue to build their reputation as leaders in their fields.

Raj Acharya

Dean

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Luddy School Mission

The Luddy School of Informatics, Computing, and Engineering includes the Luddy School of Informatics, Computing, and Engineering at Indiana University Bloomington and the School of Informatics and Computing at IUPUI. The mission of the Luddy School is to excel and lead in education, research, and outreach spanning and integrating the full breadth of computing and information technology, including the scientific and technical core, a broad range of applications, and human and societal issues and implications.

The Luddy School aims to lead the nation in creating a new, broad, and interdisciplinary view of computing and information technology, and it uses this viewpoint as the foundation of its main areas of emphasis:

Education and research

The School offers a broad array of bachelor's, master's, and doctoral programs in informatics and computer science, and it conducts research in a wide range of computing and informatics foundations, applications, and implications. This range includes:

- foundational areas including algorithms, data and search, networks and systems, machine learning, engineering science, and programming languages

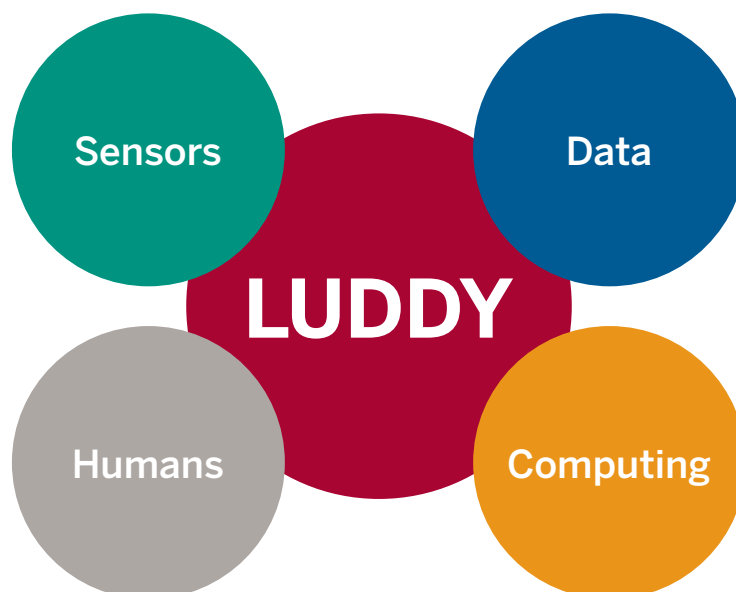
- interdisciplinary applications in areas including artificial intelligence, cognitive science and robotics, complex systems, cyber-infrastructure, digital media, health and life sciences, and security and privacy
- human and societal issues including human-computer interaction and social informatics

Economic development and entrepreneurship

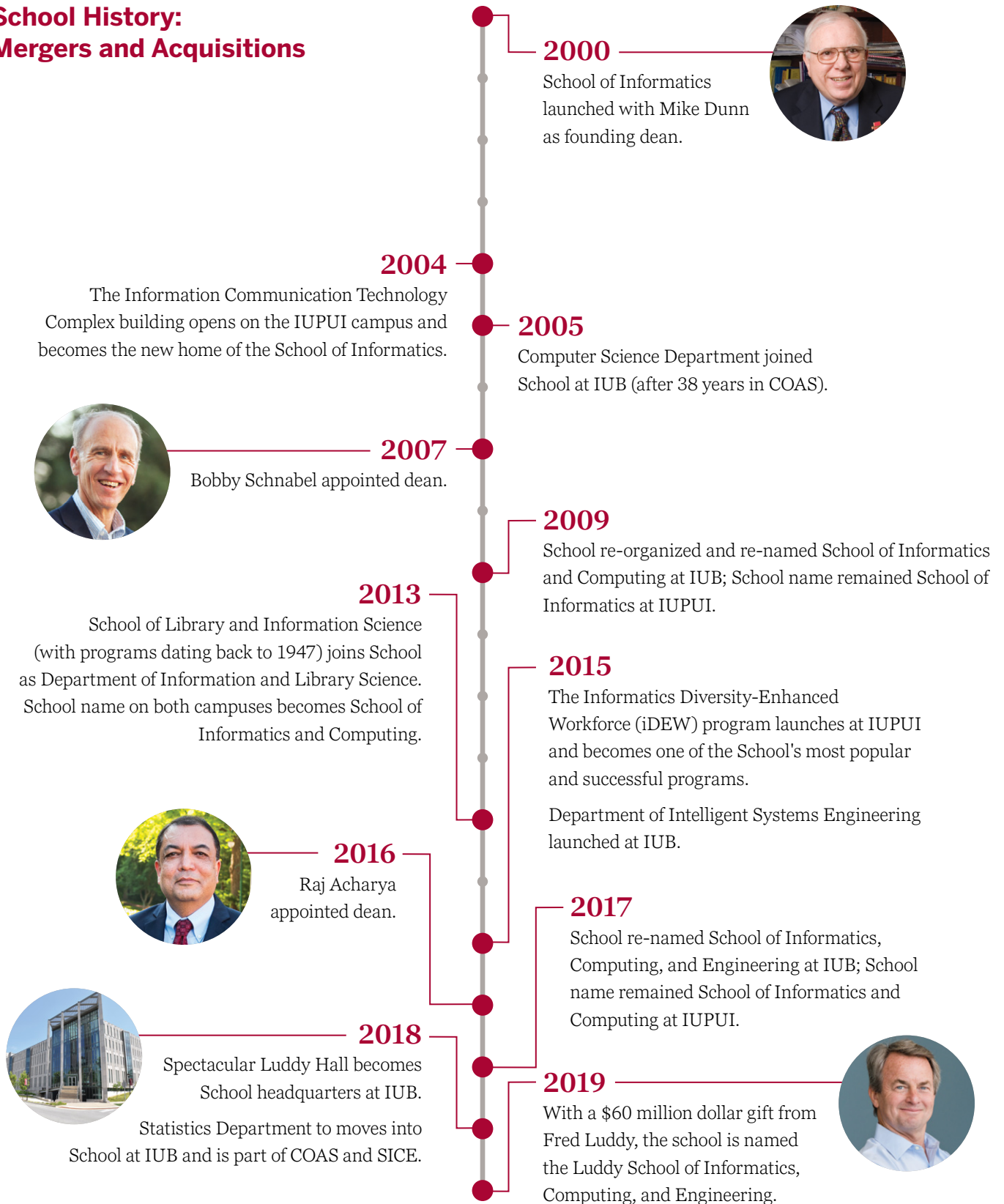
Luddy provides talented graduates and professional expertise to a wide range of computing and information technology businesses and occupations, and places special emphasis on partnering with information technology businesses and needs in the state of Indiana. It also emphasizes and supports a culture of entrepreneurship in its students, faculty, and alumni.

Diversity

The Luddy School provides an environment that involves a diverse array of students, staff, and faculty, including women and underrepresented minorities, and people with a wide range of intellectual interests and talents. The broad view the Luddy School takes of computing and information technology education and research provides a strong foundation for its diversity goals and being recognized as a national exemplar.



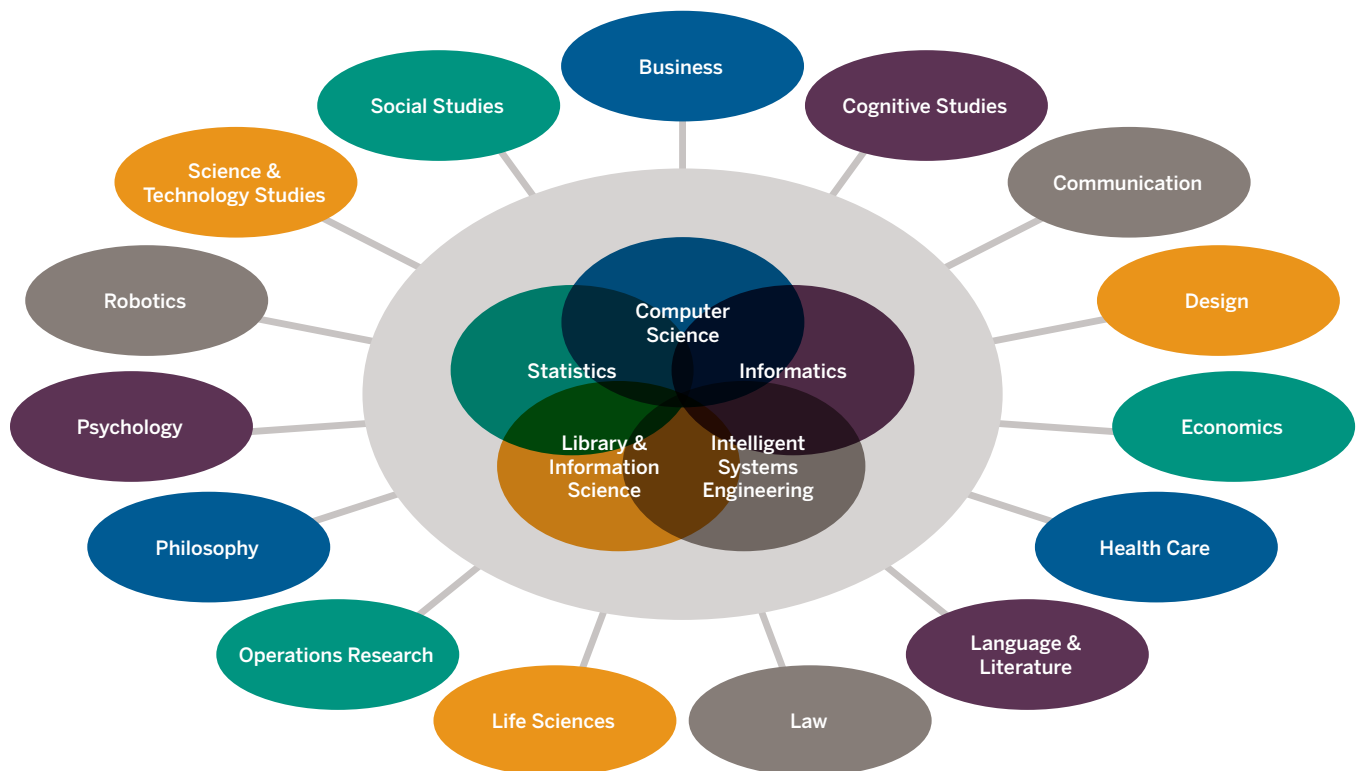
School History: Mergers and Acquisitions



Renaissance Engineers



The Luddy School of Informatics, Computing, and Engineering educates computer scientists, informaticians, and engineers who are firmly grounded in the fundamental principles of their discipline. We produce global thinkers who are well versed in the humanities and are creative problem solvers.



School Organization

IUB

Departments

- Computer Science
- Informatics
- Information and Library Science
- Intelligent Systems Engineering

Centers

- Algorithms and Machine Learning
- Applied Cybersecurity Research
- Bioinformatics Research
- Complex Networks and Systems Research
- Research on Mediated Interaction
- Data to Insight
- Security and Privacy
- Cyberinfrastructure for Network Science
- Digital Science
- Social Informatics
- Biocomplexity
- IU's Network Science Institute (IUNI).

Labs

- Comparative Classification
- Complex Systems and Computational Intelligence
- Computer Vision
- Proactive Health
- Statistical Relational AI
- Web Science
- Virtual World Heritage

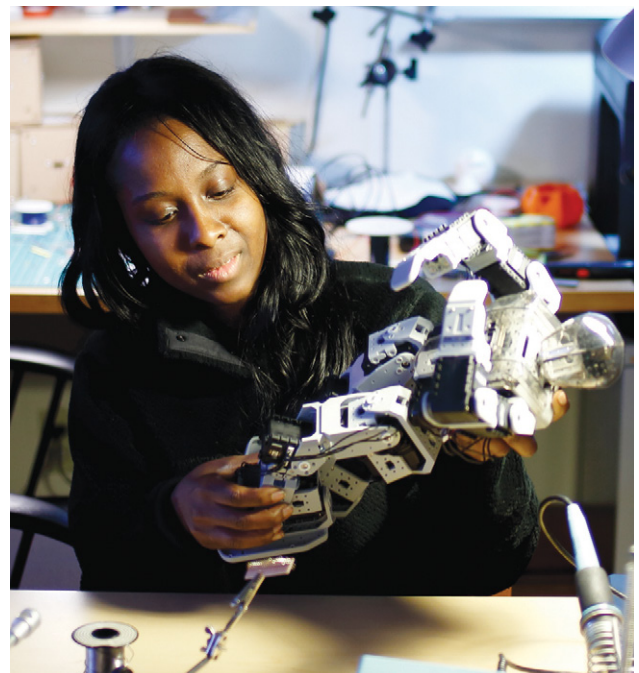
IUPUI

Departments

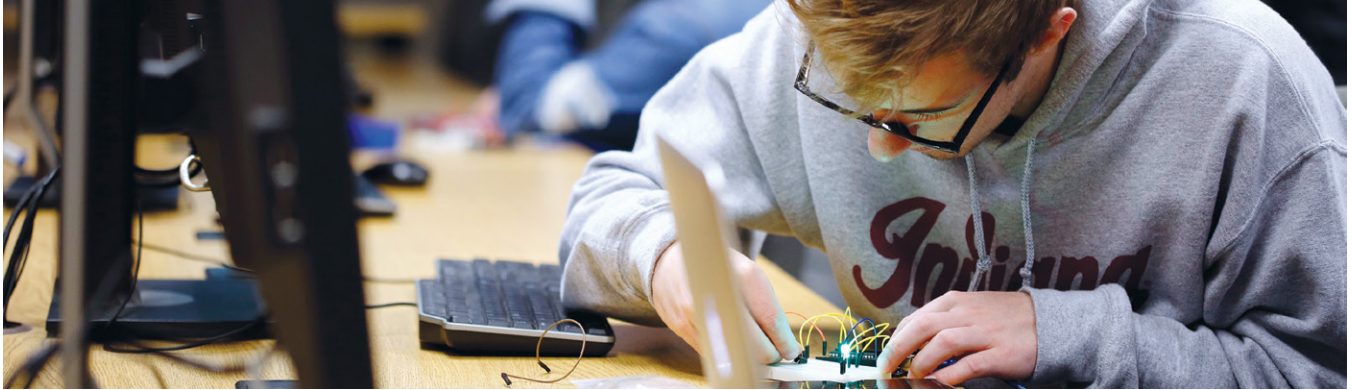
- BioHealth Informatics
- Human-Centered Computing
- Library and Information Science

Centers

- Cancer Population Analytics and Patient-Centered Informatics



Degrees



IUB

Bachelor's

- Computer Science
- Data Science
- Informatics
- Intelligent Systems Engineering

Accelerated Master's

- Computer Science
- Information Science
- Information Systems (Informatics B.S. + Kelley MSIS)
- Intelligent Systems Engineering
- Library Science
- Secure Computing

Master's

- Bioinformatics
- Computer Science
- Data Science
- Human-Computer Interaction/Design
- Informatics
- Information Science
- Intelligent Systems Engineering
- Library Science
- Secure Computing

Ph.D.

- Computer Science
- Informatics
- Information Science
- Intelligent Systems Engineering

IUPUI

Bachelor's

- Applied Data and Information Science
- Biomedical Informatics
- Health Information Management
- Informatics
- Media Arts and Science

Master's

- Applied Data Science
- Bioinformatics
- Health Informatics
- Human-Computer Interaction
- Library and Information Science
- Media Arts and Science
- Sports Analytics

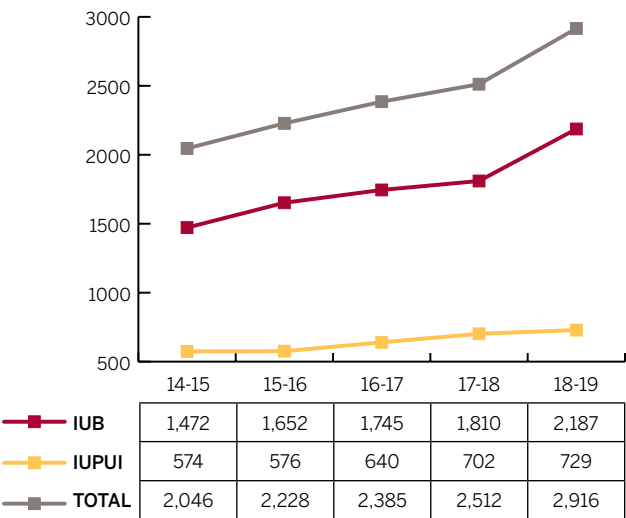
Ph.D.

- Data Science
- Informatics (specialization in Bioinformatics, Health Informatics, or Human-Computer Interaction)

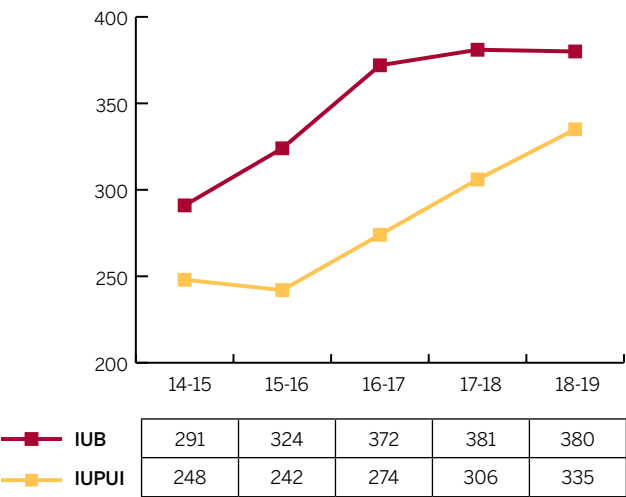
ENROLLMENT

Undergraduate Enrollment

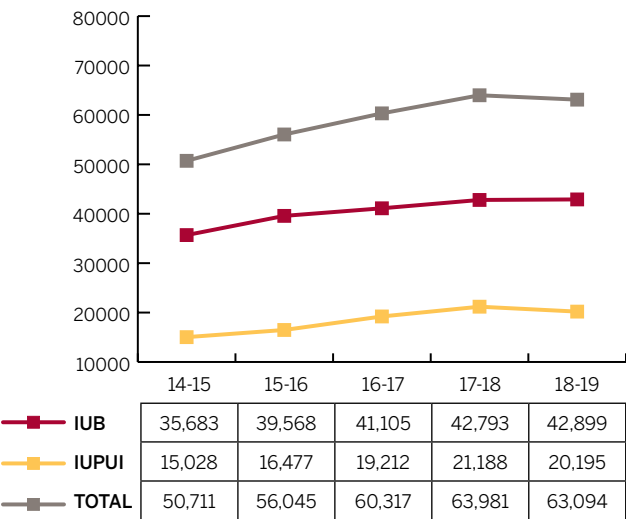
Majors



Female Majors

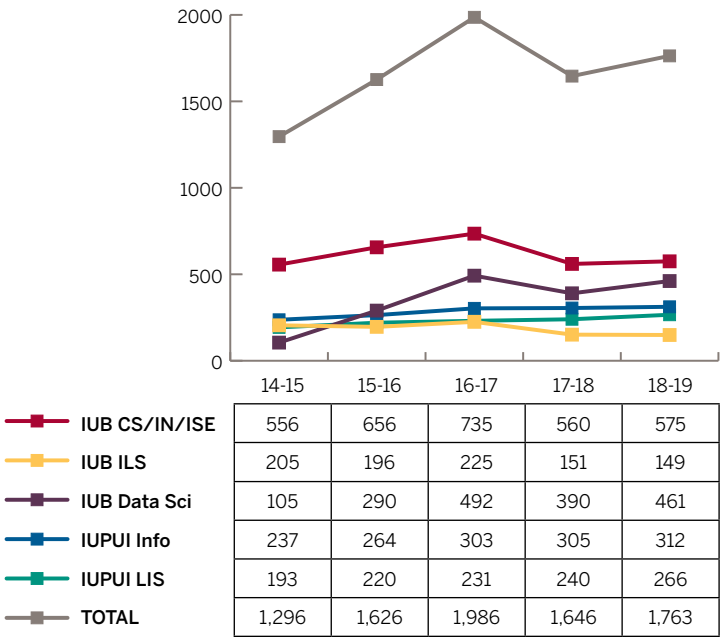


Credit Hours

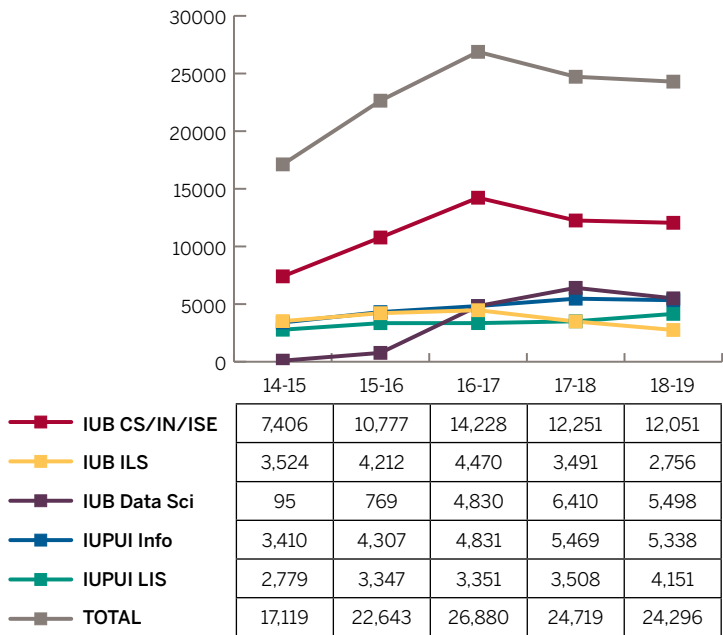


Graduate Enrollment

Number of Students



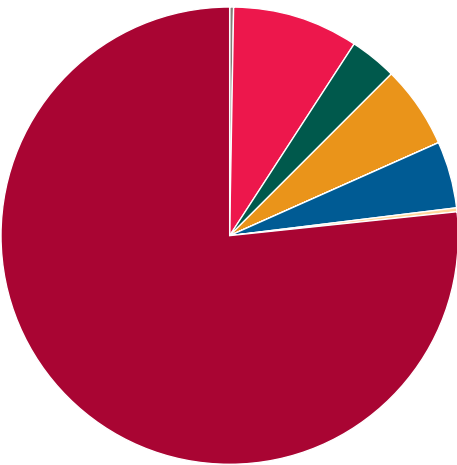
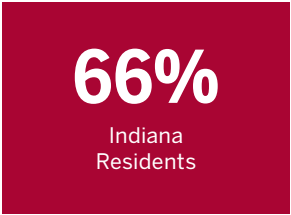
Credit Hours



ENROLLMENT

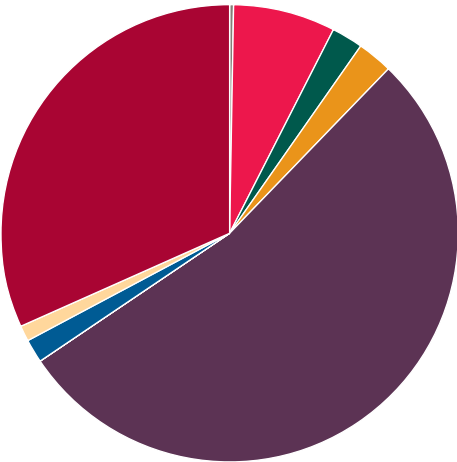
Demographics

IUB Undergraduate



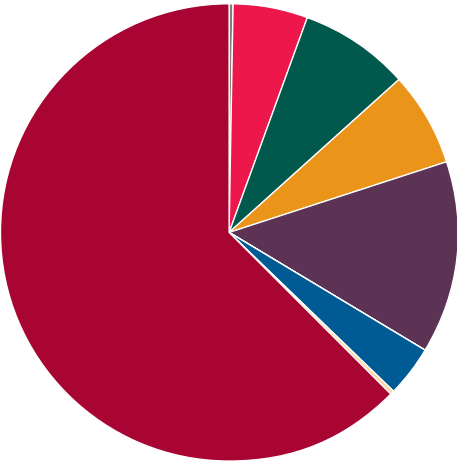
American Indian/Alaskan Native	(3)
Asian	(145)
Black/African American	(52)
Hispanic/Latino	(94)
International	(1)
Native Hawaiian/Pacific Islander	(0)
Two or More Races	(77)
Unknown	(3)
White	(1,249)

IUB Graduate



American Indian/Alaskan Native	(1)
Asian	(59)
Black/African American	(19)
Hispanic/Latino	(22)
International	(441)
Native Hawaiian/Pacific Islander	(1)
Two or More Races	(13)
Unknown	(9)
White	(265)

IUPUI



American Indian/Alaskan Native	(2)
Asian	(73)
Black/African American	(105)
Hispanic/Latino	(92)
International	(185)
Native Hawaiian/Pacific Islander	(2)
Two or More Races	(50)
Unknown	(2)
White	(859)

Quality of Undergraduate Student Body

IUB

1288

Average
SAT Score

Fall 2018

3.7

Average
GPA

Fall 2018

- 1** Cox Scholar
- 257** Hudson and Holland Scholars
- 25** Hutton Honors College
- 4** Wells Scholars

IUPUI

1166

Average
SAT Score

Fall 2018

3.47

Average
GPA

Fall 2018

- 1** Bepko Scholar and Fellow
- 8** Chancellor's Scholars
- 6** Honors Informatics and Computing



Five-Year Growth

IUB

- Total enrollment growth from 2,487 to 3,056—23% increase
- Undergraduate enrollment growth from 1,456 to 1,945—36% increase
- Graduate enrollment growth from 1,031 to 1,111—8% increase

IUPUI

- Total enrollment growth from 1,018 to 1,366—34% increase
- Undergraduate enrollment growth from 594 to 784—32% increase
- Graduate enrollment growth from 424 to 502—18% increase



BUDGET

Five-Year Growth—Faculty and Staff

IUB

- Total faculty growth from 132 to 148—12% increase
- Tenure-track faculty growth from 102 to 106—4% increase
- Non-tenure-track faculty growth from 30 to 42—40% increase
- Staff growth from 103 to 129—25% increase

IUPUI

- Total faculty growth from 46 to 52—13% increase
- Tenure-track faculty growth from 23 to 26—13% increase
- Non-tenure-track faculty growth from 23 to 26—13% increase
- Staff growth from 23 to 27—17% increase



Income/Expenses—General Fund

IUB

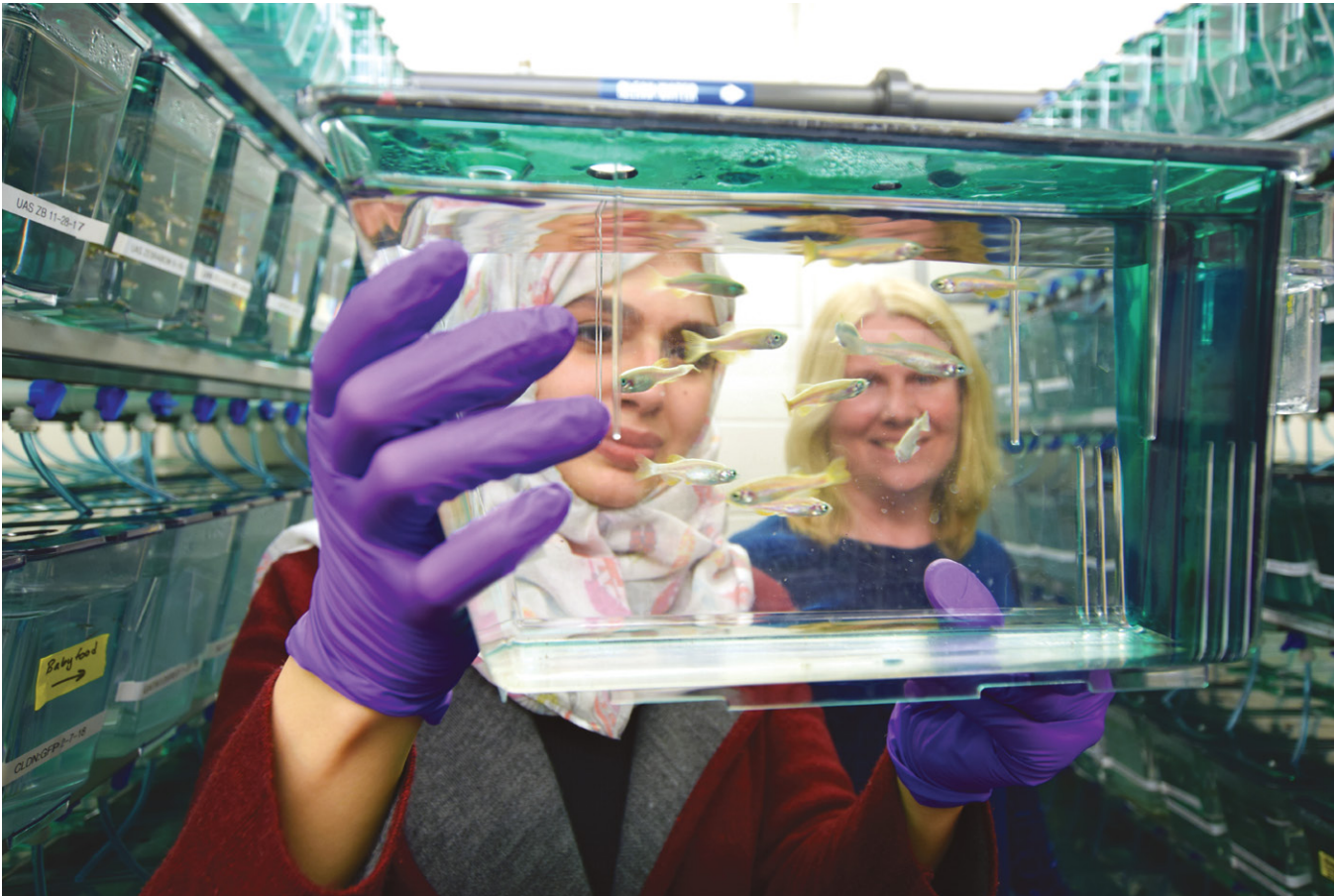
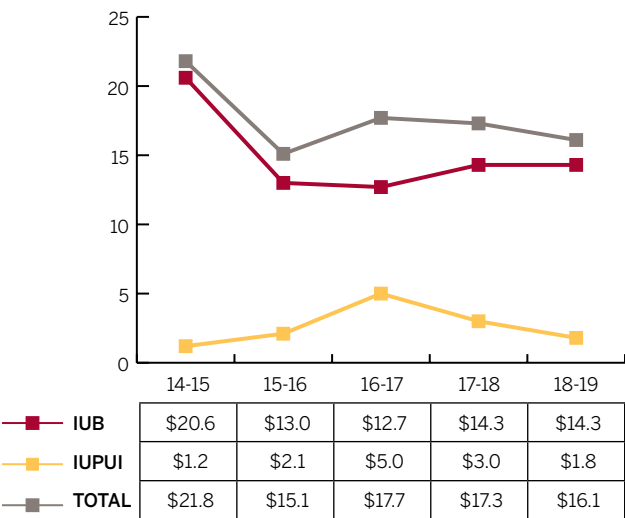
FISCAL YEAR	2015/16	2016/17	2017/18	2018/19	2019/20
INCOME	Actual	Actual	Actual	Actual	Budget
Student Fees	36,130,641	43,332,930	42,226,886	41,055,881	43,485,955
State Appropriations	11,984,578	12,230,555	12,230,555	12,215,555	12,200,555
Indirect Cost Recovery Income	3,889,022	3,624,121	2,974,041	3,375,112	3,735,000
Other Revenue	214,622	264,775	465,632	726,644	370,070
Assessments-Revenue	-10,329,525	-11,212,284	-12,291,457	-12,291,457	-14,141,093
ISE Start-up Funds	1,957,477	8,206,099	7,110,046	6,400,000	5,725,000
TOTAL INCOME	43,846,815	56,446,196	52,715,703	51,481,735	51,375,487
EXPENSES	Actual	Actual	Actual	Budget	Budget
Capital	57,841	1,957	337,479	15,665	3,300
Compensation	28,206,777	31,847,410	32,189,808	30,964,340	29,694,917
Financial Aid	5,926,981	8,227,612	7,348,918	5,938,230	5,552,986
General Expense	2,067,302	2,049,587	2,167,117	1,524,888	1,404,335
Transfer of Funds*	4,795,226	4,595,748	-1,319,442	830,735	2,669,150
Travel	332,375	490,069	430,748	306,668	325,260
Engineering	1,907,522	8,610,234	10,530,108	10,868,822	10,550,539
Grand Challenge		262,261	760,000	957,052	1,175,000
TOTAL EXPENSES	43,294,024	56,084,878	52,444,736	51,406,400	51,375,487
NET INCOME	552,791	361,318	270,967	75,335	0

IUPUI

FISCAL YEAR	2015/16	2016/17	2017/18	2018/19	2019/20
INCOME	Actual	Actual	Actual	Actual	Budget
Student Fees	9,883,558	11,623,000	13,048,097	13,302,249	12,685,216
State Appropriations	6,035,752	6,089,210	6,119,026	6,133,429	6,285,847
Indirect Cost Recovery Income	211,705	234,864	377,527	515,769	649,500
Other Revenue	12,716	89,004	4,227	1,895	550
Assessments-Revenue	-4,385,870	-4,651,568	-5,236,219	-5,738,433	-6,124,206
Transfer of Funds	202,341	164,201	168,197	106,457	0
TOTAL INCOME	11,960,202	13,548,711	14,480,855	14,321,366	13,496,907
EXPENSES	Actual	Actual	Actual	Actual	Budget
Compensation	7,902,542	9,269,988	10,386,854	9,608,105	10,191,210
Financial Aid	1,438,406	2,245,593	1,875,529	2,534,088	1,712,330
General Expense	704,541	815,148	809,126	775,602	876,321
Travel	125,922	117,914	166,732	116,792	126,120
Capital	27,788	33,363	11,517	0	0
Transfer of Funds	809,967	1,760,385	200,984	364,929	123,033
TOTAL EXPENSES	11,009,166	14,242,393	13,450,742	13,399,516	13,029,014
NET INCOME	951,036	-693,682	1,030,113	921,850	467,893

Research Funding

Funded Research Awards





Bicentennial Campaign

IUB

- At the beginning of the Bicentennial Campaign, the Luddy School of Informatics, Computing, and Engineering set a fundraising goal of \$20,000,000. Luddy met that goal in September 2017, and the goal was increased to \$27,000,000 in April 2018.
- The Luddy School met the \$27,000,000 goal in September 2019 and has raised \$27,168,948 as of 9/30/2019.
- Luddy has an additional \$64,367,489 in response-pending proposals in the pipeline.
- The School anticipates that it will finish the campaign by tripling the revised goal.

IUPUI

- At the beginning of the Bicentennial Campaign, the School of Informatics and Computing set a fundraising goal of \$3,750,000. SoIC met that goal in September 2016, and the goal was increased to \$6,000,000 in March 2018.
- As of September 2019, SoIC has raised \$5,715,853—95.26% percent of its goal.
- SoIC has an additional \$625,000.00 in response-pending proposals in the pipeline.
- The School anticipates that it should surpass the \$6,000,000 goal by the end of the campaign.

ACHIEVEMENTS

Accreditation

IUB

The Department of Information and Library Science went through its reaccreditation process in Fall 2018, and the degrees of **Master of Information Science** and **Master of Library Science** were re-accredited by the American Library Association Committee on Accreditation. The program has been continuously accredited since 1951.

The accreditation is the result of an extensive process that includes a self-study and an external review panel visit, as well as annual statistical and biennial narrative reports on the programs. Each year, the department assesses retention rate, average time to completion, and placement rate. ILS also uses the vision, mission, and goals of the department to evaluate how the programs meet the evolving needs of our students and the world.

The **Intelligent Systems Engineering bachelor's of science** will be eligible for Accreditation Board for Engineering and Technology (ABET) accreditation in 2020.

IUPUI

The **Health Information Management (HIM) Program** celebrated 70 years of the program and accreditation by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM) in 2019. The HIM Program conducts annual reviews and submits its Annual Program Assessment Report (APAR) details to CAHIIM as part of its accreditation standing. CAHIIM will be conducting a site visit in 2020 to update the program's accreditation. The HIM Program is one of the longest-standing programs in the country and is one of the largest and most prestigious. A large number of the program's active alumni have gone on to serve as presidents and officers of the American Health Information Management Association as well as the Indiana Health Information Management Association, and have received lifetime achievement awards for their contributions to the profession.



The **Health Informatics Master's** program was granted initial accreditation at the Board Meeting January 21, 2019, by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM) and approved by the American Medical Informatics Association (AMIA). The Health Informatics program applied to CAHIIM for initial accreditation for the M.S. degree program in November 2016. The Review Panel has reviewed and accepted the self-assessment and standards and moved into Peer Review in spring 2018. A campus site visit was held in fall 2019, and the accreditation was granted in early spring 2020.

The **Master of Library and Information Science**, the entry degree for a professional librarian, is accredited by the American Library Association (ALA-MLS). Universally required for professionals in academic libraries, the MLIS is essential for leadership in public libraries and provides valuable management skills. Our graduates are honored as Movers and Shakers by the Library Journal, earn national awards for their work, and achieve positions of prominence. During academic year 2018-2019, the LIS program applied to have its accreditation reaffirmed. A self-study was submitted in October 2018, and ALA's Committee on Accreditation visited in February 2019. ALA accreditation was achieved in June 2019.

Notable Faculty Hires

IUB



Yijie Wang, Assistant Professor, Department of Computer Science

Yijie Wang conducts research focused on building novel mathematical and computational tools, and approaches that harness large investigator-driven data sets to direct hypothesis-driven experimentation and hypothesis-free interpretation. Another line of his research lies in developing aptamer-based drug delivery systems. His future research will be centered on integrating large and heterogeneous 'omics' datasets to facilitate biological discovery. Yijie earned his Ph.D. in Electrical Engineering from Texas A&M University in 2015. Since then, he has been a research fellow at the Computational Biology Branch, NCBI/NLM/NIH. He has already won several awards for his research.



Justin Wood, Associate Professor, Department of Informatics

Justin comes to us from the University of Southern California where he was an associate professor in the Psychology Department. His Ph.D. work was conducted at Harvard University, and he received his Ph.D. in psychology in 2008. His research links developmental psychology to artificial intelligence with a goal of characterizing the origins and basis of cognition. His ultimate goal is to build end-to-end (pixels-to-actions) artificial agents that mimic cognitive development in newborn animals. He has already received substantial funding, including an NSF CAREER award.



Silvina Ferradal, Assistant Professor, Department of Intelligent Systems Engineering

Silvina has a Ph.D. in Biomedical Engineering, which she earned in 2014 from Washington University in St. Louis. Upon completion of her Ph.D., she took up a postdoctoral research fellowship in the Fetal-Neonatal Neuroimaging and Developmental Science Center at the Boston Children's Hospital, Harvard Medical School. She received the Summa Cum Laude Merit Award from the International Society for Magnetic Resonance in Medicine in 2014. She comes to us with teaching experience at both the graduate and undergraduate level, and with an impressive publication record.

IUPUI



Soo Hyeon Kim, Assistant Professor, Library and Information Science

Soo Hyeon Kim previously worked as a project manager to design and develop smartphones at LG Electronics. As an information and learning scientist, she thrives at the intersection of library and information science, the learning sciences, and engineering design. Her scholarly goal is to research and design connected-learning communities by leveraging on constructionist learning environments and mobile technologies to trace, facilitate, and empower youths, families, and public librarians to engage in boundary-crossing STEM learning.

ACHIEVEMENTS

Rankings

IUB

- Library and Information Sciences ranked #2 in World University Rankings (Shanghai).
- Library and Information Sciences ranked #9 by *U.S. News & World Report*.
- Computer Science ranked 12th in country in total external research expenditures (as reported by NSF).
- IU and UIUC are the top two universities in Harnessing Data. (Harnessing Data is one amongst six critical ideas of NSF).

#7 in Programming Languages

#7 in Bioinformatics

#10 in Human-Computer Interaction

#18 in Security

Via csrankings.com rankings for publications from 2017-18.



Recent Awards

IUB—Student Awards

- Provost Award for Undergraduate Research and Creative Activity Sciences—Katie Spoon (2019)
- NCWIT Collegiate Award—Katie Spoon (2019)
- Kate Hevner Mueller Award—Dedric Dennist, Jr. (2018)
- IUB's Provost's Award for Undergraduate Research and Creative Activity—Shayan Khokar (2018)
- Ian Lawson Von Toch Memorial Award for Outstanding Student—Kymberleigh Pagel (2017)
- Paper at Intelligent Systems for Molecular Biology conference—Kymberleigh Pagel (2017)
- NSF Graduate Research Program Fellowship—Ben Newman (2016)

IUB—Alumni Awards

- Forbes' 30 Under 30 for Science—Michael Barron (2017)
- Forbes' 30 Under 30 for Enterprise Tech—Tarun Gangwani (2016)

IUB—Faculty Awards

- Computing Community Consortium Council member—Katie Siek (2019)
- NCWIT Undergraduate Research Mentoring Award—Katie Siek (2019)
- Laura Bush 21st Century Librarian Program Award—Devan Donaldson (2019)
- Adobe Data Science Research Awards—Roni Khardon (2019)
- Minerva Research Initiative Award—YY Ahn (2019)

- Fulbright Award—Rob Montoya (2018)
- ACM SIGPLAN Programming Languages Software Award—Sam Tobin-Hochstadt (2018)
- CHI 2018 Diversity Champion Recognition—Shaowen Bardzell (2018)
- Foundation for Lifetime Achievement—Katy Börner (2017)
- IEEE Fellow—XiaoFeng Wang (2018), L. Jean Camp (2017)
- AAAS Fellow—L. Jean Camp (2017), Matthew Hahn (2017), Volker Brendel (2016), Thomas Sterling (2014)
- ACM Fellow—Katy Börner (2018)
- Best in AccompaniX Turing Tests in Creative Arts—Chris Raphael (2017)
- Precision Health Grand Challenge
- Emerging Areas of Research Program: Learning: Brains, Machines, and Children and Center for Quantum Science and Engineering
- 21 NSF CAREER Awards, including Norman Su (2019), Qin Zhang (2019), Vikram Jadhao (2018), Samir Patel (2018), Filippo Radicchi (2016), Ryan Newton (2015)
- NSF CRII Awards—Dana Habeeb (2019), Donald Williamson (2018)
- Humboldt Research Award (by the Alexander Von Humboldt)
- Amsterdamska Award from European Association for the Study of Science and Technology—Eden Medina (2016)
- Best Vision Paper at ICRA—Michael Ryoo (2016)
- Jason Farradane Award at the Internet Librarian International—Blaise Cronin (2014)
- Junior Scientific Award from CSS—Filippo Radicchi (2014)
- Microsoft Research Fellow—YY Ahn (2014)
- MIRA Trailblazer Award—Bobby Schnabel (2014)

IUPUI—Student Awards

- IUPUI Chancellor's Award for Outstanding Undergraduate Research—Cade Jacobs (2017)
- Top 100 Outstanding Student Award—Cade Jacobs (2017)
- Top 100 Outstanding Student Award—Adetoun Akinmboni (2017)
- Under presidency and leadership of SoIC Ph.D. candidate, Abdullah Alzeer, the IUPUI Saudi Students Club was selected by the Saudi Arabian Cultural Mission to the USA as the leading student organization in the U.S. (2017)
- Fellow of the American Health Information Management Association—Cindy Spann (2017)
- Top 100 Outstanding Student Award—Rachel Palfi (2018, 2019)
- Top 100 Outstanding Student Award—Jordan Nelsen (2018)

IUPUI—Department and Program Awards

- US2020 STEM Mentoring Award for Excellence in Public-Private Partnerships—iDEW Program (2017)
- Department of Human-Computer Interaction became a member of the prestigious Human-Computer Interaction Consortium (HCIC) (2017)
- Tech Educator of the Year, TechPoint Mira Awards—iDEW Program (2018)
- Indiana Department of Education Award for Excellence in Career and Technical Education (as a partner with Arsenal Technical and Pike high schools)—iDEW Program (2018)

IUPUI—Faculty Awards

- Association of Computing Machinery 21st Annual Best of Computing Award—Lynn Dombrowski (2017)



ACHIEVEMENTS

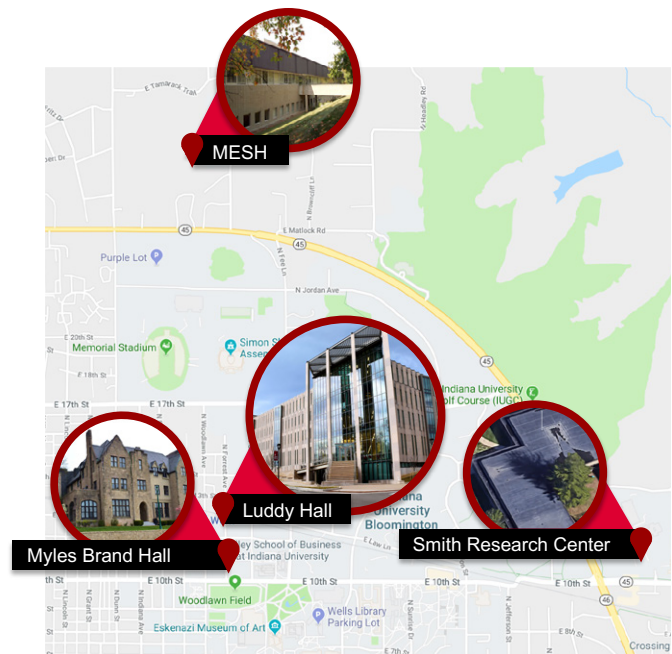
Space and Facilities

IUB

- Opened spectacular Luddy Hall in January 2018, with official dedication April 2018
- Maintain Myles Brand Hall, formerly the Informatics East and West buildings
- ISE faculty and some staff at the Smith Research Center
- Major labs for ISE being developed at MESH

IUPUI

- IN-SoIC has offices in two locations: the IT building and Walker Plaza. The IT building has 27,300 sq. ft. allocated to faculty offices, staff offices, undergraduate and graduate study areas, research labs, and SoIC sponsored classrooms.
- Four classrooms are outfitted with high-end Windows or Macintosh workstations to support industry standard applications. Two classrooms are laptop ready with power and network connections available. Three rooms in the IT building are dedicated study space to support undergraduate and graduate research. Two rooms in the IT building support audio and video production, and post production. One room is dedicated to specific research projects. IT has a dedicated secure server room. SoIC maintains three racks of servers using that space.
- Walker Plaza has 12,136 sq. ft. allocated to faculty offices, staff offices, graduate study areas, and research labs. Space at Walker Plaza is currently under a month-to-month lease. Five rooms are dedicated study space to support graduate students. Two suites are dedicated to specific research projects.



International Collaboration

Formal Partnerships

- Global Talent Attraction Program: an undergraduate summer research program for high-achieving international students
- Sungkyunkwan University, South Korea (SKKU), Sub-Agreement for Student Exchange
- Yonsei University, South Korea, Sub-Agreement for Academic Cooperation
- National Institute of Informatics, Japan, Agreement for Academic Cooperation
- Nanjing University School of Information Management, China, Agreement for Academic Cooperation
- Princess Sumaya University for Technology (PSUT), Jordan, Agreement for Cooperative Education Program
- National University of Asunción's Polytechnic Faculty, Collaboration Agreement (projects involving the use technology to aid in the translation of documents between Spanish and Guarani)
- Develop new areas of faculty research collaborations and enable student exchanges with Sorbonne University

Proposed Partnership

- Contracts for Software Use
- The Department of Wood and Strings, Sichuan Conservatory of Music, China, License and Use Agreement
- Central Conservatory of Music, China, License and Collaboration Agreement

Informal Collaboration

- Undergraduate students at IUB may enroll in an eight-week course about India, which concludes with a short-term immersion trip to the country.
- Indian Institute of Technology, Delhi collaborates with faculty in the Human-Centered Computing Department at IUPUI in the exploration and development of designs and assistive technologies specifically targeting the blind and visually impaired.
- The Human-Centered Computing Department at IUPUI maintains a summer study abroad program that has resulted in the development of a considerable connection with the city of Paros, Greece.



ACHIEVEMENTS

New Initiatives Planned over Next Five Years

IUB

- Implement initiatives as outlined in the Luddy School of Informatics, Computing, and Engineering naming gift:
 - Create an artificial intelligence initiative focused on digital health
 - Construct the Luddy Center for Artificial Intelligence, a new building to house the premier AI research program in the country
 - Establish endowment to attract and retain faculty and chairs to expand the reputation of the Luddy School
 - Establish endowment to support fellowships for graduate students
 - Establish the Luddy Scholars program, designed to create the most prestigious scholarship on the IUB campus to attract elite students to our school
 - Create a Fund for Excellence to showcase our research to the general public and raise our reputation in the world
- B.S. in Data Science (approved for fall 2020)
- B.S. in Cybersecurity and Global Policy, jointly with SGIS (approved for Fall 2020)
- Proposing undergraduate minor in data science
- Partnership with the School of Education on potential joint graduate and undergraduate degrees fall 2020
- Looking into offering a B.S. in Integrated User Experience Design jointly with the Eskenazi School of Art, Architecture, + Design
- Exploring new master's degree in Technology, Innovation, and Entrepreneurship, jointly with Kelley
- Blockchain Center, jointly with Maurer and Kelley
- Innovation Center in Santa Clara
- Expand study abroad programs

IUPUI

- Develop strong SoIC-industry linkages and establish an Informatics-Industry Innovation Hub
- Establish an Institute for Diversity in Informatics to sustain and scale the highly successful iDEW and LiFT programs by raising \$15M
- Establish at least three successful centers in innovative solutions for Translational Biomedical Informatics, Data Lab, and Human-machine Symbiosis, respectively
- Develop systematic plans for recruiting and retaining minority faculty
- Increase female student applications by 25% and diverse student applications by 35% in three years in the undergraduate degree programs
- Expand collaborative activities in Thailand, China and India using IU Gateway offices
- Establish at least one more study abroad programs
- Establish an Informatics Future Faculty Fellows Program (IF3P): a targeted program to recruit and cultivate faculty members from diverse backgrounds
- Establish an Undergraduate Research Opportunities Program (SoIC UROP)
- Establish sustainable hackathon and challenge activities in biomedical sciences to high school and undergraduate students
- Apply and establish an NSF REU site in biomedical informatics



BICENTENNIAL STRATEGIC PLAN INITIATIVES



IUB Bicentennial Strategic Plan Priorities

Priority One: *A Commitment to Student Success*

- Luddy developed the highly successful master's program in Data Science. It is available as a residential, online, or hybrid (1/2 residential; 1/2 online) program.

Priority Two: *A Community of Scholars*

- Launched the Observatory on Social Media in conjunction with IU's Media School as a result of \$3 million gift from the Knight Foundation.
- Luddy School faculty are leading the cross-campus Network Science Institute, which is a community of faculty focused on interdisciplinary network science approaches to understanding and improving the complex challenges of our world.

Priority Three: *Catalyzing Research*

- The School and its faculty are an integral part of the Precision Health Grand Challenge and involved in the Rural Engagement Initiative.

Priority Five: *A Global University*

- Establish three more study abroad programs in addition to the existing one
- Effectively utilize the IU Gateway offices in China and India to recruit top Ph.D. students

Priority Eight: *Toward a Culture of Building and Making*

- The Shoemaker Innovation Center is a space in Luddy Hall dedicated to student entrepreneurship and innovation. It serves as a start-up incubator, offers a speaker series, mentoring programs, and more.
- Luddy hosts the Cheng Wu Innovation Challenge, supporting students with a \$5,000 fellowship toward developing a technological innovation without commercial considerations.
- The Luddy School is home to five fabrication and prototype labs.

Priority Six: *Health Sciences Research and Education to Improve the State and Nation's Health*

- IUB faculty participating in Precision Health Grand Challenge
- Establish strong collaborations with Cook, Baxter, Lilly, and other health/life sciences firms

Strategic Plan Continue Priority: *Delineate and Support Multiple, Differentiated Campus Missions*

- The School's programs and degrees at IUB and IUPUI reflect the distinct nature of each campus. IUB capitalizes on the long-standing computer science department and the newly-established Intelligent Systems Engineering Department to address crucial workforce needs. IUPUI's focus on health programs, including Biomedical Informatics and Health Information Management, capitalize on IUPUI's long-standing strengths in healthcare. Both campuses unite around the power of technology and data to drive innovation.

BICENTENNIAL STRATEGIC PLAN INITIATIVES

IUPUI Bicentennial Strategic Plan Priorities

Priority One: *A Commitment to Student Success*

- Support undergraduate students from diverse socioeconomic backgrounds through the LiFT and new Scholars programs
- Achieve 60% four-year graduation rate through an innovation and proactive advising plan
- Achieve and sustain 90% first-year retention rate and at least 85% second-year retention rate
- Increase the number of courses and programs offered through online while balancing student engagement
- Continue to develop the accelerated BS-MS programs that will result in better and high paying job for graduates
- Promote Graduate Programs regionally and nationally to increase domestic graduate student enrollment
- Explore and work with the iSchool International Consortium to attain iSchool ranking
- Develop Off-Ramp programs in specialized areas in SoIC to serve undergraduate students seeking career readiness

Priority Three: *Catalyzing Research*

- Identify unique research strengths and develop collaborative teams within SoIC and across the campus to facilitate large external grant opportunities
- Establish strong collaboration between SoIC researchers and industrial research and development, including local and national companies for translational research through the BioHealth research center
- Develop and implement an Undergraduate Research Opportunities Program to promote undergraduate research

Priority Five: *A Global University*

- Establish two more study abroad programs in addition to the existing one
- Effectively utilize the IU Gateway offices in Thailand, China and India to expand research and exchange programs with appropriate institutions at both countries
- Continue to attract strong students from international universities

Priority Six: *Health Sciences Research and Education to Improve the State and Nation's Health*

- Continue to support nation's critical need in biomedical health workforce through SoIC's well established biomedical informatics degree programs. Actively promote these programs in Indiana
- Establish strong collaborations with 16 Tech, IBRI, Regenstein Institute, and precision medicine program at IUSOM
- Develop academic collaborations with international universities and establish articulation agreements

Priority Seven: *Building a Prosperous and Innovative Indiana*

- Develop an informatics innovation hub to bring industry-driven projects for students and faculty to work on in areas such as IoT, precision medicine, health informatics, data analytics and visualization, and accessibility technologies
- Promote entrepreneurial opportunities for SoIC faculty and students



Challenges over Next Five Years

IUB

- Continuing to build a world-class engineering program
- Enhancing investment in artificial intelligence
- Identifying space for growing programs
- Recruiting top international graduate students to U.S./Indiana University
- Making Luddy the premier one-stop shop for technology programs
- Recruiting and retaining top faculty
- Increasing diversity in faculty, staff, and students

IUPUI

- Hiring a capable Associate Dean for Research and building a strong research program in SoIC
- Establishing viable industry and community relationships to develop research and entrepreneurial opportunities for faculty and students
- Establishing multidisciplinary research centers in Data Science and Accessibility Technologies
- Growing the school with a diverse and inclusive body of faculty
- Computer science at IUPUI not being part of SoIC and the impediments that causes for the school to reach its potential due to perceived conflict
- Establishing a distinct identity for IN-SoIC that can be leveraged for development, community engagement and recognition, organizational membership and ranking as well as for student and faculty recruitment
- Recruiting and retaining students with the national decline of perspective student populations





200 YEARS

INDIANA UNIVERSITY BICENTENNIAL



LUDDY
SCHOOL OF INFORMATICS,
COMPUTING, AND ENGINEERING



IUPUI
SCHOOL OF INFORMATICS
AND COMPUTING

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