We’re a big campus — **Big 10**, to be exact — with **$642 million** spent on research and development in a typical year. We have **15 schools and colleges**, including our internationally known Grainger College of Engineering, where the Department of Computer Science resides. This substantial breadth offers many opportunities for CS graduate students to conduct collaborative groundbreaking research that can impact not only computing but medicine, business, the arts, media, or whatever defines your research and passion. **Together we can do the impossible every day.**

**ILLINOIS COMPUTER SCIENCE OFFERS...**

- A dynamic and stimulating research culture with nearly 150 potential faculty advisors, covering 11 research areas and every sub-area in between.

- A top-five CS graduate program and top-ranked programs on campus in computer engineering, information science, physics, psychology, and engineering.

- Flexible programs of study enabling graduate students to craft a learning experience that best fits their passions, interests, and goals.

- A culture of collaboration where the best minds tackle a myriad of 21st-century problems by developing cutting-edge data science techniques and harnessing the power of petascale computing.

- Thousands of creative and driven alumni who are entrepreneurs, educators, and technical visionaries. Companies who have been founded or led by Illinois Computer Science graduates are among the biggest names in the high-tech arena, including C3 IoT, Match.com, Microsoft, Netscape, PayPal, YouTube, and Yelp.

**FACTS & FIGURES**

- **90** Faculty
- **1,286** Graduate Students
- **1,740** Undergraduate Students
- **14,040** Alumni
- **$32.3 Million** in Research Expenditures in 2017

**Birthplace of Mosaic, the World’s First Popular Web Browser, and the LLVM Compiler Infrastructure**

University of Illinois received more **NSF Funding** than any other University in 6 out of the last 8 years

College of Engineering Ranked **#13 in Academic Rankings** of World Universities in Engineering

ILLINOIS CS ranked **#5** in the **U.S. News & World Report** Graduate School Rankings
The demand for computer science education has exploded because computing underpins just about every aspect of modern life. The arts, science, business, medicine, and engineering all benefit from the computational power, modeling, and thinking found in computer science. Our students and faculty are bringing their expertise to bear on many of society's most challenging problems. **Illinois Computer Science** has a global reputation for developing revolutionary technology—where groundbreaking research addresses real-world problems.

**F R O M A T O P - 5 P R O G R A M W I T H R E S E A R C H I N:**

- Architecture, Compilers, and Parallel Computing
- Artificial Intelligence
- Bioinformatics and Computational Biology
- Computers and Education
  - Database and Information Systems
  - Interactive Computing
  - Programming Languages, Formal Methods, and Software Engineering
- Scientific Computing
  - Security and Privacy
- Systems and Networking
  - Theory and Algorithms

**W O R L D - C L A S S F A C U L T Y**

Learn from and work with some of the best CS faculty in the world. Our **90 INTERNATIONALLY RECOGNIZED FACULTY** include 15 ACM Fellows, 17 IEEE Fellows, 8 Sloan Research Fellows, and 36 NSF CAREER Award winners. And our faculty generated $32.3 million in research expenditures in 2018.
As we approach the end of Moore’s Law, and as mobile devices and cloud computing become pervasive, all aspects of system design—circuits, processors, memory, compilers, programming environments—must become more energy efficient, resilient, and programmable.

Our research groups explore energy efficiency via low-voltage design techniques, specialized hardware accelerators, adaptive runtime techniques in high performance computing, efficient memory architectures for heterogeneous mobile systems, novel architectures for exascale systems, and other projects. We examine resilience through tolerating variation during chip fabrication, failure-tolerant processor architectures, scalable resilience protocols, and automated software debugging and recovery techniques. We explore programmability through architectural support for synchronization, automatic parallelization and vectorization, performance-portability for heterogeneous mobile systems, high-performance implementations of scripting languages, and highly scalable parallel run-time systems.

In addition to collaborating with major companies, our software artifacts like LLVM and Charm++ are widely used in industry, government labs, and academic research.

**CS Faculty and Their Research Interests**

**Sarita Adve**  
Computer Architecture, Parallel Computing, Memory Systems, Domain-Specific and Heterogeneous Systems, Resiliency, Approximate Computing

**Vikram Adve**  
Compilers, Parallel Computing, Heterogeneous Parallel Systems, Hardware-Software Codesign, Edge Computing

**Nancy M. Amato**  
Parallel Algorithms and Libraries, Parallel Graph Algorithms, Performance Modeling

**Christopher Fletcher**  
Architectures for Security and Machine Learning

**William Gropp**  
Programming Models and Systems for Parallel Computing

**Laxmikant Kale**  
Large-Scale Parallel Systems; Runtime Systems, Tools, and Frameworks for High-Performance Computing

**Klara Nahrstedt**  
Quality of Experience, Tele-Immersion, Multi-View Visualization, Embedded Sensors, Distributed and Parallel Systems

**Luke Olson**  
Parallel Numerical Algorithms, Performance Modeling

**David Padua**  
Compiler Techniques for Parallel Computing

**Lawrence Rauchwerger**  

**Marc Snir**  
Large-Scale Parallel Systems, Algorithms, Libraries

**Edgar Solomonik**  
High-Performance Computing, Communication Cost Analysis, Tensor Computations, Quantum Simulation

**Josep Torrellas**  
Parallel Architectures, Power-and Reliability Aware Hardware/Software Architectures

**CS Faculty and Their Research Interests**

**Related Research Efforts & Groups**

- Comp-Gen Initiative in the Carl R. Woese Institute for Genomic Biology
- Midwest Big Data Hub
- National Center for Supercomputing Applications
- The LLVM Compiler Infrastructure
- Parallel Computing Institute
The study of systems that behave intelligently, artificial intelligence includes several key areas where our faculty are recognized leaders: computer vision, machine listening, machine learning, and natural language processing.

Computer vision systems can understand images and video, for example, building extensive geometric and physical models of cities from video, or warning construction workers about nearby dangers. Natural language processing systems understand written and spoken language; possibilities include automatic translation of text from one language to another, or understanding text on Wikipedia to produce knowledge about the world. Machine listening systems understand audio signals, with applications like listening for crashes at traffic lights, or transcribing polyphonic music automatically. Crucial to modern artificial intelligence, machine learning methods exploit examples in order to adjust systems to work as effectively as possible.

**CS Faculty and Their Research Interests**

<table>
<thead>
<tr>
<th>Faculty Name</th>
<th>Research Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nancy M. Amato</td>
<td>Robot Motion and Task Planning, Multi-Agent Systems, Crowd Simulation</td>
</tr>
<tr>
<td>Kevin C. Chang</td>
<td>Machine Learning, AI Applications, Data Management Support for AI</td>
</tr>
<tr>
<td>Margaret Fleck</td>
<td>Computational Linguistics, Programming Language Tools</td>
</tr>
<tr>
<td>David A. Forsyth</td>
<td>Computer Vision, Object Recognition, Scene Understanding</td>
</tr>
<tr>
<td>Jiawei Han</td>
<td>Machine Learning, Natural Language-Based Text Analysis, Text Summarization</td>
</tr>
<tr>
<td>Kris Hauser</td>
<td>Motion Planning, Optimal Control, Integrated Planning and Learning, Robot Systems</td>
</tr>
<tr>
<td>Julia Hockenmaier</td>
<td>Natural Language Processing, Computational Linguistics</td>
</tr>
<tr>
<td>Derek Hoiem</td>
<td>Computer Vision, Object Recognition, Spatial Understanding, Scene Interpretation</td>
</tr>
<tr>
<td>Heng Ji</td>
<td>Natural Language Processing, especially on Information Extraction and Knowledge Base Population, as well as its Connections with Computer Vision and Natural Language Generation</td>
</tr>
<tr>
<td>Nan Jiang</td>
<td>Reinforcement Learning, Machine Learning, Sample Complexity Analyses</td>
</tr>
<tr>
<td>Karrie Karahalios</td>
<td>Human-Computer Interaction for Machine Learning, AI Explainability</td>
</tr>
<tr>
<td>Sanmi Koyejo</td>
<td>Machine Learning, Neuroimaging, Biomedical Imaging</td>
</tr>
<tr>
<td>Steven M. LaValle</td>
<td>Robotics, Motion Planning, Virtual Reality</td>
</tr>
<tr>
<td>Svetlana Lazebnik</td>
<td>Computer Vision, Scene Understanding, Visual Learning, Vision and Language</td>
</tr>
<tr>
<td>Bo Li</td>
<td>Secure Machine Learning, Robust Learning</td>
</tr>
<tr>
<td>Jian Peng</td>
<td>Machine Learning and Optimization</td>
</tr>
<tr>
<td>Paris Smaragdis</td>
<td>Machine Learning for Audio, Speech, and Music; Signal Processing; Source Separation; Sound Recognition and Classification</td>
</tr>
<tr>
<td>Matus Telgarsky</td>
<td>Machine Learning</td>
</tr>
</tbody>
</table>
Our researchers work on core computational biology-related problems, including genomics, proteomics, metagenomics, and phylogenomics. We develop novel techniques that combine ideas from mathematics, computer science, probability, statistics, and physics, and we help identify and formalize computational challenges in the biological domain, while experimentally validating novel hypotheses generated by our analyses.

We are developing algorithms with improved accuracy for large-scale and complex estimation problems in phylogenomics (genome-scale phylogeny estimation), multiple sequence alignment, and metagenomics. We are exploring gene regulation—developing advanced techniques to predict the diverse function of noncoding parts of DNA and to relate interspecies and interpersonal differences in DNA to differences in the organism’s form and function. We work broadly in the development of machine learning techniques for computational biology, with research spanning the areas of molecular and structural biology; networks and systems biology; and molecular mechanisms of human disease.

**CS FACULTY AND THEIR RESEARCH INTERESTS**

**Nancy M. Amato**  
Modeling Molecular Motions, Protein Folding, Protein/Ligand Binding

**Mohammed El-Kebir**  
Bioinformatics, Cancer Genomics, Cancer Phylogenetics, Phylogeography, Information Visualization

**Jiawei Han**  
Mining Biological Text, Biological Named Entity and Relation Extraction

**Jian Peng**  
Bioinformatics, Protein Function and Structure, Systems Biology, Machine Learning and Optimization

**Saurabh Sinha**  
Bioinformatics, Genomics, Modeling, Sequence Analysis, Machine Learning, Probabilistic Methods, Cancer, Behavior

**Tandy Warnow**  
Graph Algorithms, Statistical Estimation, Heuristics for NP-Hard Optimization Problems, Phylogenomics, Metagenomics, Multiple Sequence Alignment, Historical Linguistics

**ChengXiang Zhai**  
Intelligent Biomedical Decision Support Systems, Analysis of Electronic Medical Records, Biomedical Literature Retrieval and Mining

**RELATED RESEARCH EFFORTS & GROUPS**

- Carl R. Woese Institute for Genomic Biology
- Carl Illinois College of Medicine
- Comp-Gen Initiative in the Carl R. Woese Institute for Genomic Biology
- KnowEnG, an NIH Center for Excellence for Big Data to Knowledge in the Carl R. Woese Institute for Genomic Biology
- Midwest Big Data Hub
- National Center for Supercomputing Applications
Computing has a large and growing impact on education. It is improving classroom interactivity, increasing accessibility, facilitating personalized learning inside and outside the classroom, and providing a platform for exploring fundamental questions about how people learn.

At the same time, demand for computer science education is skyrocketing worldwide. Reaching larger and more diverse audiences requires both understanding how people learn computer science and creating best practices for teaching specific computing topics.

Our faculty study broadly in both of these facets of computers and education. We build new systems, run them at scale, and design interfaces and study the human impacts of technology in the classroom. We gather and analyze data about student behavior to better understand the learning process using both data science techniques and qualitative research.

CS FACULTY AND THEIR RESEARCH INTERESTS

Abdussalam Alawini
Active Learning in Large Classrooms, Teamwork and Collaboration, Computer-Based Assessment, Instructional Technologies

Lawrence Angrave
Success Factors of Underrepresented Students in Online Courses, Universal Access, Crowd-Based Course Curation

Mattox Beckman
Process-Oriented Guided Inquiry Learning, Training Graduate Teaching Assistants, Scalable Education, Semantics Based Autograders

Geoffrey Challen
Technology to Improve Classroom Interactivity and Outcomes, Data-Driven Approaches to Teaching and Learning

Neal Davis
Incentivizing Productive Student Behaviors, Open Source Curricula, Assessment, Learning Analytics

G. Carl Evans
Outcomes Assessment

Wade Fagen-Ulmschneider
Data Discovery, Social Media, Open-Ended Creative Assessments

Elsa Gunter
Scalable Education, Automated Interactive Assessment, Blended Learning

John Hart
Learning at Scale

Geoffrey Herman
How Students Learn Computing, Teaching at Scale, Assessing Student Learning

Eric Shaffer
Teaching at Scale, Outcomes Assessment, Learning Analytics

Mariana Silva
Teaching at Scale, Assessment, Collaborative Learning, Online Learning Platforms

ChengXiang Zhai
Intelligent Education Systems, Scalable Education, Applications of Data Science in Education

Craig Zilles
Learning Analytics, Pedagogy, Computer-Based Testing, Assessment, Asynchronous Exams, Item Generation, Concept Inventories, Plagiarism Detection
The rapid growth of big data creates unprecedented demand and opportunities for developing powerful intelligent information systems that help people manage and extract knowledge from data.

Our faculty work on a wide range of research problems, tackling the many challenges associated with developing such intelligent systems and their applications. Research includes helping people search and find relevant data and information; mining massive amounts of heterogeneous data sets to discover actionable knowledge; optimizing the entire workflow of data access, analytics, and exploration; and analyzing large social networks and to optimize human-computer collaboration centered on data.

Our faculty work closely with industry, and many of our algorithms are used in a wide range of information system applications, especially in database and data analytics systems, data mining systems, search engines, and web information service systems.

**CS Faculty and Their Research Interests**

- **Abdussalam Alawini**
  Data Provenance, Scientific Data Management, Data Citation, Workflow Management, Machine Learning

- **Heng Ji**
  Natural Language Processing, especially on Information Extraction and Knowledge Base Population, as well as its connections with Computer Vision and Natural Language Generation

- **Kevin C. Chang**
  Data Mining, Database Systems, Information Retrieval, Web Search/Mining, Social Media Analytics

- **Yongjoo Park**
  Database Systems, Big Data Analytics, Approximate Computing, Machine Learning for Systems

- **Jiawei Han**
  Data Mining, Database Systems, Information Retrieval, Web Search/Mining, Social Media Analytics

- **Hanghang Tong**
  Data Mining, Network and Graph Mining

- **ChengXiang Zhai**
  Intelligent Information Systems, Information Retrieval, Data Mining, Big Data Applications

- **Hari Sundaram**
  Network Analysis, Behavioral Modeling, Applications of Game Theory

**Related Research Efforts & Groups**

- Carl R. Woese Institute for Genomic Biology
- Comp-Gen Initiative in the Carl R. Woese Institute for Genomic Biology
- Data Analytics Subprogram in the Advanced Digital Sciences Center
- Information Network Academic Research Center
- KnowEnG, an NIH Center for Excellence for Big Data to Knowledge in the Carl R. Woese Institute for Genomic Biology
- Midwest Big Data Hub
Interactive Computing is about effectively connecting computing services to human needs. The word Interactive is found in the names of our fields, like Human-Computer Interaction, and in the name of our topics, like Interactive Computer Graphics and Interactive Data Visualization.

Interaction is also at the core of engineering any technology relying on human engagement, which involves a process of designing, building, verifying, and maintaining, all with humans in the loop. Interactive Computing is also more than just humans interacting with technology, but also systems that enable people to interact with each other and the emergent benefits of social networking, crowd sourcing, and computer-supported cooperative work. And just as interactive computing relies on advances in other areas, such as databases, machine learning, networked systems and software engineering, the area of interactive computing impacts these other areas, especially when they rely on human engagement.

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**CS Faculty and Their Research Interests**

- **Brian P. Bailey**
  Human-Computer Interfaces, Design Thinking, Creativity, Crowdsourcing, Teamwork
- **David A. Forsyth**
  Graphics, Projection Mapping
- **Wai-Tat Fu**
  Human-Computer Interaction, Information Systems, Knowledge Representation
- **John Hart**
  Data Visualization, Computer Graphics, Virtual Reality
- **Karrie Karahalios**
  Social Computing, Human Computer Interaction, Social Visualization, Assistive Technologies, Fairness and Bias in Computing
- **Alex Kirlik**
  Human-Computer Interaction, Human Factors, Cognitive Science and Engineering, Modeling and Supporting Human Judgment and Decision Making, Human-Automation Interaction
- **Ranjitha Kumar**
  Data-Driven Design, Design Mining, User-Centered Machine Learning, UI/UX, Mobile/Web Applications, Social Networks, Fashion, Emoji
- **Steven M. Lavalle**
  Virtual Reality, Human Perception
- **Klara Nahrstedt**
  Quality of Experience, Tele-Immersion, Multi-View Visualization, Embedded Sensors, Distributed and Parallel Systems
- **Hari Sundaram**
  Voting, Improving Individual and Collective Decision Making, Information Asymmetry, MOOCs
The growing complexity and scale of software poses formidable challenges for reliability, security, performance, and productivity. Our faculty tackle these problems by developing innovative techniques in programming language design and semantics; techniques and tools for formal verification, software testing, and automated debugging; and models and verification techniques for embedded systems that interact with physical entities.

We are known for theoretical advances such as the Actor model of concurrency; rewriting logic and related semantic frameworks; concolic testing for automated test generation; automated logic reasoning; automated inference of specifications and invariants; and control-theoretic techniques for analyzing cyberphysical systems. We have also produced widely-used tools and techniques like the Maude rewriting engine; the LLVM compiler infrastructure; the Chisel optimization system for approximate computing; the first complete formalizations of C, Java, and JavaScript; regression test suite reduction techniques; and educational tools based on automated test generation (CodeHunt; Pex4Fun) that have attracted over a million users.
Simulation plays a major role in nearly every area of science and engineering—from data analysis to physical models. Our faculty design, build, and analyze the behavior of numerical algorithms to ensure that numerical methods are accurate and that implementations are efficient.

We design and analyze the accuracy of methods, developing numerical approximations to partial differential equations with advanced finite element methods and integral equations. We also develop solvers for these problems, instrumenting techniques based on numerical linear algebra, iterative subspace methods, and multigrid methods. Our research explores the efficiency of these methods on a range of architectures and environments, from high-concurrency nodes, such as GPUs, to large-scale supercomputing systems. We explore parallel scalability and analyze performance in computing kernels from graph algorithms to sparse linear algebra.
At the same time society is increasingly relying on computers, a diverse array of adversaries are exploiting security vulnerabilities in these systems to compromise critical assets. There are also rising privacy concerns about how pervasive collection of data about individuals can be used to predict and manipulate their behavior. Illinois Security and Privacy faculty address security and privacy concerns with both theoretical and applied approaches. They address security of computer and communication systems including: operating systems; auditing and data provenance; the Internet, wireless networks, and the “internet of things”; cloud computing; approximate computing; quality and resource management; and mobile computing. They also explore techniques related to security and privacy in a data science context such as: technologies for privacy-preserving data sharing based on cryptography, hardware, or generative models; distributed systems, crypto-currencies, and blockchains; adversarial machine learning; secure computation, zero-knowledge verifiable outsourcing, and related cryptography. These and other techniques are applied to a wide range of applications including: multi-sensory systems and multimedia; human factors and socio-technical considerations; power grids, autonomous vehicles and other cyber-physical systems; healthcare and genomics.

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**CS FACULTY AND THEIR RESEARCH INTERESTS**

**Vikram Adve**  
Secure Compilation, Program Analysis, Software Security, Debloating

**Adam Bates**  
Systems and Networks, Auditing, Internet of Things Security

**Matthew Caesar**  
Network Verification, Software Resilience, Model Checking

**Roy A. Campbell**  
Cloud Computing, Big Data, Ubiquitous Computing, Microkernels

**Chris Fletcher**  
Hardware Security, Applied Cryptography

**Brighten Godfrey**  
Network Infrastructure Security and Verification

**Carl Gunter**  
Internet of Things, Privacy, Data Science, Healthcare, Power Grid

**Dakshita Khurana**  
Secure Computation, Cryptography, Privacy

**Robin Kravetz**  
Mobile Privacy, Wireless Security

**Bo Li**  
Machine Learning, Privacy Preserving Generative Models

**Sasa Misailovic**  
Approximate Computing across Full System Stack

**Sibin Mohan**  

**Klara Nahrstedt**  
Mobile, Multi-Sensory Systems, Quality and Resource Management, Energy Systems

**Ling Ren**  
Computer Security, Applied Cryptography, Blockchain

**Gang Wang**  
Security and Privacy, Internet Measurement, Human Factors

**Tao Xie**  
Mobile, Text Analytics, Testing, Program Analysis
Working on problems that are directly relevant to industry, our faculty are advancing the state of the art in cloud computing and systems for big data, software defined networks, wired and datacenter networking, Internet of Things, wearable computing, mobile computing, multimedia systems, security, privacy, health-care engineering systems, and cyber-physical systems.

We work collaboratively with industry partners including Google, Microsoft, AT&T, HP, and many others. Our research has also resulted in the creation of several startup companies. We produce creative and innovative students who become faculty at top-ranked schools, researchers at prestigious labs, and who join cutting-edge companies. Our courses are not just available to on-campus students, but a selection of them are also offered to off-campus students through Coursera MOOCs with enrollment numbers in the hundreds of thousands.

**CS FACULTY AND THEIR RESEARCH INTERESTS**

<table>
<thead>
<tr>
<th>Name</th>
<th>Research Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tarek Abdelzaher</td>
<td>Sensors, Embedded and Real-Time Systems</td>
</tr>
<tr>
<td>Gul Agha</td>
<td>Distributed Systems, Wireless Embedded Sensor Networks, Multi-Agent Systems</td>
</tr>
<tr>
<td>Adam Bates</td>
<td>Security</td>
</tr>
<tr>
<td>Marco Caccamo</td>
<td>Real-Time and Embedded Systems, Real-Time Scheduling and Security</td>
</tr>
<tr>
<td>Matthew Caesar</td>
<td>Design, Analysis, and Verification of Wide-Area Networks and Distributed Systems</td>
</tr>
<tr>
<td>Robin Kravets</td>
<td>Networking, Wireless Networking, Mobile Computing, Internet of Things</td>
</tr>
<tr>
<td>Sasa Misailovic</td>
<td>Approximate Computing Across Full System Stack</td>
</tr>
<tr>
<td>Lui Sha</td>
<td>Real-Time Systems and Scheduling, Cyber-Physical Systems, Medical Systems Engineering</td>
</tr>
<tr>
<td>Deepak Vasisht</td>
<td>Mobile Computing, Wireless Networking, Internet of Things, Ubiquitous Computing</td>
</tr>
<tr>
<td>Tianyin Xu</td>
<td>Operating Systems, Cloud and Datacenter Systems, System Reliability and Resilience, Large-Scale System Management, Configuration Management, Reliability Engineering</td>
</tr>
</tbody>
</table>
Theoretical computer science develops efficient algorithms and explores fundamental barriers to efficient and secure computation. Advances in algorithms can provide dramatic performance gains, which are critically important as the era of Moore’s Law—and its promise of ever-increasing processor speeds—draws to a close.

Our faculty develop algorithms to find optimal paths, trees, flows, clusters, and other important combinatorial structures in geometric and network data. For problems where computing the best possible solution is prohibitively expensive, we develop fast approximation algorithms to compute provably good solutions, and we explore the limits of what cannot even be approximated quickly. We develop algorithms that exploit geometric, algebraic, and topological properties of data that arise naturally in practice. Within cryptography, we develop protocols for secure multiparty computation and code obfuscation. In algorithmic game theory, we study the impact of strategic behavior among multiple agents. Our research, in addition to its fundamental importance, has many near-term applications in Computer Science and beyond.

CS FACULTY AND THEIR RESEARCH INTERESTS

Nancy M. Amato
Geometry, Parallel Algorithms, Computational Biology

Timothy Chan
Computational Geometry, Algorithms, Data Structures

Chandra Chekuri
Algorithms, Optimization

Mohammed El-Kebir
Combinatorial Optimization, Integer Linear Programming, Computational Biology

Jeff Erickson
Computational Geometry and Topology, Algorithms

Michael A. Forbes
Pseudorandomness, Algebraic Computation, Computational Complexity

Brighten Godfrey
Algorithms for and Analysis of Networks and Distributed Systems

Sariel Har-Peled
Computational Geometry, Geometric Approximation Algorithms

Sheldon Jacobson
Optimization, Operations Research

Dakshita Khurana
Cryptography, Secure Computation, Zero-Knowledge, Differential Privacy

Ruta Mehta
Algorithmic Game Theory, Mathematical Economics, Efficient Algorithms

Ling Ren
Cryptography, Distributed Algorithms

Matus Telgarsky
Machine Learning Theory

Mahesh Viswanathan
Model Checking, Logic, Cyberphysical Systems, Software, Security

Tandy Warnow
Graph Algorithms, Statistical Estimation, Heuristics for NP-Hard Optimization Problems, Experimental Algorithmics, Applications to Grand Challenges in Biology and Historical Linguistics

RELATED RESEARCH EFFORTS & GROUPS

- Information Trust Institute in the Coordinated Science Lab
- Carl R. Woese Institute for Genomic Biology
THOMAS M. SIEBEL CENTER

Most CS faculty and students work in the Thomas M. Siebel Center for Computer Science, which has some of the best classrooms, research & instructional labs, and informal meeting spaces on the Illinois campus. Our collaborative culture brings the best minds together to work on some of society’s most complex problems—from medical information privacy, to climate modeling, to transforming raw data into useful information, to understanding the genome. Our students have boundless opportunities to conduct multidisciplinary research focused on the computing challenges that society faces now, and into the future. » http://cs.illinois.edu

RESEARCH PARK

The Research Park fosters opportunities for students and faculty to develop and commercialize new technology in conjunction with their academic work, enables established companies to collaborate with University of Illinois researchers, and gives students access to exciting internship opportunities. Research Park is also home to the EnterpriseWorks incubator facility and resource center for science and technology focused entrepreneurs. » http://researchpark.illinois.edu

TECHNOLOGY ENTREPRENEUR CENTER

The Technology Entrepreneur Center (TEC) provides students and faculty with the skills, resources, and experiences necessary to become successful innovators, entrepreneurs, and leaders who tackle grand challenges and change the world. TEC offers courses; venture and product competitions (such as the Cozad New Venture Competition and the Illinois Innovation Prize); plus workshops and other events that expose students to the concepts of technology innovation and market adoption. » http://tec.illinois.edu

BLUE WATERS

CS researchers have access to Blue Waters, the fastest supercomputer at a university anywhere in the world. Capable of completing more than 1 quadrillion calculations per second on a sustained basis, its peak speed is more than 13 times faster and (almost 3 million times faster than the average laptop). Researchers use Blue Waters to predict the behavior of complex biological systems, understand how the cosmos evolved after the Big Bang, design new materials at the atomic level, predict the behavior of hurricanes and tornadoes, and simulate complex engineered systems like the power distribution system and airplanes and automobiles. » http://bluewaters.ncsa.illinois.edu
LIFE AS A ILLINOIS CS STUDENT

At Illinois, you have access to countless opportunities and support to ensure an amazing experience both inside and outside the classroom.

DEPARTMENT OF COMPUTER SCIENCE

Visit the links below to learn more about life as a graduate student in our department.

CS Graduate Program Application Information: http://cs.illinois.edu/admissions/graduate

CS Graduate Program Policies: http://cs.illinois.edu/academics/graduate

Research: http://cs.illinois.edu/research

Faculty: http://cs.illinois.edu/people/faculty/department-faculty

CS Graduate Student Organization (CSGSO): https://www.facebook.com/csgso

GRAINGER COLLEGE OF ENGINEERING

Home to 12 academic departments, 9 multidisciplinary research centers, and 15 top-5 ranked degree programs, Grainger Engineering’s students, faculty, and alumni set the standard for excellence while solving the world’s greatest challenges.

Grainger Engineering: http://grainger.illinois.edu/academics/graduate

Engineering Update: http://grainger.illinois.edu/students/engineering-update

Meet Grainger Engineering Graduate Students (YouTube playlist): http://go.cs.illinois.edu/meetENGstudents

Engineering Career Services: http://ecs.engineering.illinois.edu

GRADUATE COLLEGE

The Graduate College at the University of Illinois enrolls more than 10,000 graduate and professional students in more than 100 disciplines. Our graduate community is international in its composition and global in its impact.

Graduate College: http://grad.illinois.edu

Resources: http://grad.illinois.edu/students

Student Handbook and Policies: http://grad.illinois.edu/handbooks-policies

Diversity and Inclusion: http://grad.illinois.edu/diversity/about

New Student Quick Guide: http://grad.illinois.edu/quick-guide

UNIVERSITY OF ILLINOIS

Founded as the Illinois Industrial University in 1867, the University of Illinois at Urbana-Champaign was one of the original 37 public land-grant institutions created within 10 years of the signing of the Morrill Act by Abraham Lincoln in 1862.

Facts: http://illinois.edu/about/facts.html

Research: http://illinois.edu/research

Arts & Culture: http://illinois.edu/arts

News & Events: http://news.illinois.edu

International Student Resources: http://isss.illinois.edu

Off-Campus Housing: http://tenantunion.illinois.edu

On-Campus Housing: http://housing.illinois.edu

Student Health Insurance: http://www.uhcsr.com/illinois

FINANCIAL AID OPPORTUNITIES

Illinois Computer Science is committed to providing funding opportunities for graduate students. MS and PhD students may be offered a research or teaching assistantship—including a stipend, full tuition waiver, and partial fee waiver—making graduate school affordable.

Students may also qualify for fellowships offered by Illinois Computer Science, the College of Engineering, the Graduate College, or may apply to external funding agencies like the NSF. For more information on funding opportunities, please visit http://cs.illinois.edu/admissions/financial-aid.
ENGAGE IN STUDENT GROUPS
While on campus, there are over 1,000 student groups that provide a range of activities that can include leadership, mentorship, volunteering, professional development, and social interactions. To deepen your experience while in Siebel Center, get involved in a CS-affiliated student group:

- **Association for Computing Machinery (ACM),** which organizes HackIllinois and the Reflections | Projections Conference: https://acm.illinois.edu
  https://hackillinois.org
  https://reflectionsprojections.org

- **Blacks & African Americans in Computing (BAAC):**
  http://baac.engr.illinois.edu/

- **CS Graduate Student Organization (CSGSO):**
  www.facebook.com/csgso

- **Founders, for entrepreneurs:** www.founders.illinois.edu

- **Latinos in Computer Science (LCS):** http://go.cs.illinois.edu/lcs

- **Society of Industrial and Applied Mathematics (SIAM):**
  http://siam.cs.illinois.edu

- **Women in Computer Science (WCS):** www.illinoiswcs.org

AN AFFORDABLE MICRO-URBAN ENVIRONMENT
The cost of living in Champaign-Urbana is 72.8% less than San Francisco, 59.4% cheaper than Seattle, 54.4% more economical than Boston, and 28.2% better than Atlanta [Sperling’s Best Places, 2019]

Ranked the No. 4 small city for educated millennials. [Business Insider]

Learn about Champaign-Urbana's micro-urban community:
http://www.yourewelcomecu.com
https://www.visitchampaigncounty.org

CAMPUS ACTIVITIES, AMENITIES, AND RESOURCES
- **Activities and Recreation Center (ARC):**
  www.campusrec.illinois.edu/facilities/arc

- **Illini Union:** http://union.illinois.edu

- **Illinois Athletics:** http://fightingillini.com

- **Krannert Art Museum:** http://kam.illinois.edu

- **Krannert Center for the Performing Arts:** www.krannertcenter.com

GET ACQUAINTED WITH THE COMMUNITY
- **The Daily Illini,** one of the country’s largest student-run newspapers: www.dailyillini.com

- **The News-Gazette,** the newspaper and online source for news and advertising in East Central Illinois: www.news-gazette.com

- **40 North,** a local nonprofit organization committed to cultivating creativity in Champaign County by promoting many community-wide events, programs, and resources: http://40north.org.
Conveniently centered between Chicago, Indianapolis, and St. Louis, the University of Illinois provides an entertainment and cultural hub on par with the country’s leading cities. Our campus community is home to Big 10 Division I sports; marquee theatrical, musical, dance performances; amazing festivals and fairs; and fantastic health and recreational facilities.
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  - On-Campus and Online
  - MCS Data Science Track: Online Only
- MS in Bioinformatics

**Apply by the Deadline**

- MS/PhD in Computer Science: **December 15 (Fall)**
- On-Campus MCS: **January 15 (Fall)**
- Online MCS: **October 15 (Spring)**, **February 15 (Summer)**, & **May 30 (Fall)**
- MCS Data Science Track: **October 15 (Spring)** & **May 30 (Fall)**
- MS in Bioinformatics: **October 15 (Spring)** & **January 15 (Summer & Fall)**

For more information visit

[go.cs.illinois.edu/GradPrograms](http://go.cs.illinois.edu/GradPrograms)

or contact:

**Office of Graduate Programs**

(217) 333-4428

On-Campus Programs: academic@cs.illinois.edu

Online Programs: online-mcs@cs.illinois.edu

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