CS @ ILLINOIS
Graduate Programs
DEPARTMENT OF COMPUTER SCIENCE
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

EXPLOR

DO THE IMPOSSIBLE
EVERY DAY.

ILLINOIS
During the last five decades CS @ ILLINOIS has produced thousands of creative and driven graduates who have made significant contributions to the computing field and society at large.

Our alumni are entrepreneurs, educators, and technical visionaries. They have launched entirely new industries, generated billions of dollars in commerce, created tens of thousands of jobs, and revolutionized the way people communicate, shop, conduct business, and are entertained. Companies that have been founded or led by CS @ ILLINOIS graduates are among the biggest names in the high-tech arena, including Match.com, Microsoft, Netscape, PayPal, Siebel Systems, YouTube, and Yelp.

FACTS and FIGURES

- 70 faculty
- 650 graduate students
- 1,650 undergraduate students
- 11,500 alumni
- $34 million in research expenditures in 2015
- Birthplace of Mosaic, the world's first popular web browser, and the LLVM compiler infrastructure

- University of Illinois is #1 in NSF funding
- College of Engineering ranked #4 in Academic Rankings of World Universities in Engineering
- CS @ ILLINOIS ranked #5 in the U.S. News & World Report Graduate School Rankings
- Ranked #13 in Academic Rankings of World Universities in Computer Science
We’re a big campus—Big 10, to be exact—with more than $743 million spent on research and development in a typical year. We have 12 colleges, including our internationally known 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.

CS @ ILLINOIS has:

- A dynamic and stimulating research culture with 90 potential faculty advisors, covering 9 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.

Meet the CS @ ILLINOIS Graduate Programs Team

Rob A. Rutenbar
Abel Bliss Professor & Department Head
(217) 333-3426
rutenbar@illinois.edu

Chandra Chekuri
Professor & Director of Graduate Programs
(217) 265-0705
chekuri@illinois.edu

Darko Marinov
Associate Professor & Director of Graduate Admissions
(217) 265-6117
marinov@illinois.edu

Viveka P. Kudaligama
Coordinator of Graduate Programs
(217) 300-2276
kudaliga@illinois.edu

Mary Beth Kelley
Graduate Admissions/Advisor
(217) 333-3527
mkelley@illinois.edu

Kara MacGregor
Graduate Admissions/Advisor
(217) 333-9706
kmacgreg@illinois.edu

Kathy Runck
Graduate Office Manager
(217) 333-4197
krunck@illinois.edu
CS @ ILLINOIS has a **global reputation** for developing revolutionary technology—where groundbreaking research addresses real-world problems. Earn a **premier CS graduate degree** from a top-5 program with research in:

- Architecture, Compilers, and Parallel Computing
- Artificial Intelligence
- Bioinformatics and Computational Biology
- Database and Information Systems
- Graphics, Visualization, and Human-Computer Interaction
- Programming Languages, Formal Methods, and Software Engineering
- Scientific Computing
- Systems and Networking
- Theory and Algorithms

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. CS @ ILLINOIS students and faculty are bringing their expertise to bear on many of society's most challenging problems.

**WORLD-CLASS FACULTY**

Learn from and work with some of the best CS faculty in the world. Our 70 **internationally recognized faculty** include 15 ACM Fellows, 14 IEEE Fellows, 8 Sloan Research Fellows, and 27 CAREER Award winners. And our faculty generated $34 million in research expenditures in 2015.
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.

**Related Research Efforts and Groups**

- Comp-Gen Initiative in the Carl R. Woese Institute for Genomic Biology
- National Center for Supercomputing Applications
- The LLVM Compiler Infrastructure
- Parallel Computing Institute

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**CS Faculty and their Research Interests**

<table>
<thead>
<tr>
<th>Faculty Name</th>
<th>Research Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarita Adve</td>
<td>parallel computing, memory architecture, power-and reliability-aware architectures</td>
</tr>
<tr>
<td>Vikram Adve</td>
<td>compiler infrastructures and techniques, secure architectures, heterogeneous systems</td>
</tr>
<tr>
<td>Christopher Fletcher</td>
<td>joining fall 2017 secure architectures</td>
</tr>
<tr>
<td>Maria J. Garzaran</td>
<td>compilers, hardware-software interaction, software frameworks for high-performance computing</td>
</tr>
<tr>
<td>William Gropp</td>
<td>programming models and systems for parallel computing</td>
</tr>
<tr>
<td>Laxmikant Kale</td>
<td>large-scale parallel systems: runtime systems, tools, and frameworks for high-performance computing</td>
</tr>
<tr>
<td>David Padua</td>
<td>compiler techniques for parallel computing</td>
</tr>
<tr>
<td>Rob A. Rutenbar</td>
<td>accelerator architecture, approximate computing, FPGA, VLSI, CAD</td>
</tr>
<tr>
<td>Marc Snir</td>
<td>large-scale parallel systems, algorithms, libraries</td>
</tr>
<tr>
<td>Josep Torrellas</td>
<td>parallel architectures, power-and reliability-aware hardware/software architectures</td>
</tr>
<tr>
<td>Craig Zilles</td>
<td>compilers, dynamic optimization, computer science education</td>
</tr>
</tbody>
</table>
The study of systems that behave intelligently, artificial intelligence includes several key areas where our faculty are recognized leaders: computer vision, machine listening, natural language processing, and machine learning.

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.
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.
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

Kevin C. Chang
data mining, database systems, machine learning, information retrieval, web search and mining, social media analytics

Jiawei Han
data mining, data warehousing, database systems, information networks

Aditya Parameswaran
data management, data mining, database theory, interactive systems, crowdsourced computation

Dan Roth
knowledge representation, natural language processing, machine learning

Saurabh Sinha
bioinformatics, genomics

Hari Sundaram
social and information networks, wearable sensors, computational advertising

Marianne Winslett
information security, scientific data management

Chengxiang Zhai
information retrieval, text mining, natural language processing, bioinformatics

Related Research Efforts and 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
Increasingly present in daily life, interactive technology needs to be designed effectively to avoid adverse consequences such as loss of life, productivity loss, and negative experiences. To solve these monumental problems, our researchers invent, implement, and study new forms of interaction, automation, and visualization techniques.

Our work targets problems in social computing, design and creativity, decision making, intelligent systems, and cognitive modeling. For example, we study the transparency of algorithms controlling social media feeds, the use of robotics in domestic environments to support aging in place, and the application of crowdsourcing for creative work. Working at times with companies like Microsoft, Intel, Google, and Facebook, our research synthesizes knowledge from machine learning, psychology, design, and the learning sciences. In graphics and visualization, our research includes modeling and animation of natural phenomena, computational topology, graphics hardware utilization, image-based rendering, implicit surfaces, procedural texturing, and surface parameterization.

Related Research Efforts and Groups

- Center for People and Infrastructure in the Coordinated Science Laboratory
- Human-Computer Intelligent Interaction in the Beckman Institute for Advanced Science and Technology

CS Faculty and their Research Interests

**Brian P. Bailey**
human-computer interfaces, creativity support tools, online innovation communities, collaboration in multi-device environments

**David A. Forsyth**
graphics, projection mapping

**Wai-Tat Fu**
human-computer interaction, information systems, knowledge representation

**John Hart**
graphics, computational topology, scientific visualization

**Karrie Karahalios**
social computing, social network analysis, social spaces, smart infrastructure

**Alex Kirlik**
human factors, cognitive engineering

**Ranjitha Kumar**
data-driven design, human-computer interaction, data mining, machine learning, Web

**Steven M. LaValle**
virtual reality, human perception

**Hari Sundaram**
social and information networks, wearable sensors, computational advertising
Programming Languages, Formal Methods, and Software Engineering

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.

Related Research Efforts and Groups
- Coordinated Science Lab
- Assured Cloud Computing-University Center of Excellence in the Information Trust Institute
- Science of Security Lablet in the Information Trust Institute
- The LLVM Compiler Infrastructure

CS Faculty and their Research Interests

**Vikram Adve**
software security, programming models for heterogeneous platforms

**Gul Agha**
models for concurrent computation, parallel and distributed algorithms

**Elsa Gunter**
software engineering, programming languages, formal methods

**Darko Marinov**
software engineering, reliability & testing, theorem proving, model checking, rich specification languages

**Jose Meseguer**
formal executable specification and verification, software architecture

**Sasa Misailovic**
program optimization systems, approximate computing techniques

**David Padua**
program analysis, transformation, optimization

**Madhusudan Parthasarathy**
formal methods, software verification, model checking, decidable logics

**Grigore Rosu**
software, design, semantics and implementation of programming specification languages

**Mahesh Viswanathan**
algorithmic verification of cyberphysical systems

**Tao Xie**
software engineering, software testing, program analysis, software analytics
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.

**Related Research Efforts and Groups**

- Blue Waters in the National Center for Supercomputing Applications
- Center for Exascale Simulation of Plasma-Coupled Combustion
- Computational Science and Engineering
- National Center for Supercomputing Applications
- Parallel Computing Institute
- Theoretical and Computational Biophysics Group

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**CS Faculty and their Research Interests**

**Paul Fischer**  
numerical PDEs, spectral element methods, computational fluid dynamics, parallel and high-performance algorithms, iterative methods

**William Gropp**  
high-performance scientific computing, scalable numerical algorithms for PDEs, large-scale parallel software

**Michael T. Heath**  
numerical analysis and scientific computing, numerical linear algebra, optimization

**Laxmikant Kale**  
Simulation software, numerical libraries, algorithms

**Andreas Kloeckner**  
integral equation methods for PDEs, high-order finite element methods for hyperbolic PDEs, tools and languages for high-performance computing, time integration

**William Kramer**  
extreme-scale computing and analytics, performance evaluation, data and storage techniques

**Luke Olson**  
numerical analysis, scientific computing, large-scale simulation

**Marc Snir**  
large-scale parallel systems, algorithms, libraries

**Edgar Solomonik**  
scientific computing
Systems and Networking

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, healthcare 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.

Related Research Efforts and Groups

- Assured Cloud Computing: University Center of Excellence in the Information Trust Institute
- Coordinated Science Lab
- Information Trust Institute in the Coordinated Science Lab

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>Roy H. Campbell</td>
<td>cloud computing, big data, security, ubiquitous computing</td>
</tr>
<tr>
<td>David Chu</td>
<td>joining fall 2017 mobile computing</td>
</tr>
<tr>
<td>Brighten Godfrey</td>
<td>internet architecture, trustworthy networking, data center network design</td>
</tr>
<tr>
<td>Carl A. Gunter</td>
<td>security and privacy for computer systems, healthcare information technology</td>
</tr>
<tr>
<td>Indranil Gupta</td>
<td>large-scale distributed systems, cloud computing</td>
</tr>
<tr>
<td>Robin Kravets</td>
<td>mobile computing, Internet-of-Things, ad-hoc networks</td>
</tr>
<tr>
<td>Sasa Misailovic</td>
<td>approximate computing across full system stack</td>
</tr>
<tr>
<td>Sibin Mohan</td>
<td>real-time systems, embedded and cyber-physical systems, security, software-defined networking, cloud computing</td>
</tr>
<tr>
<td>Klara Nahrstedt</td>
<td>multimedia networking, mobile networking, quality of service, network security, smartgrid security</td>
</tr>
<tr>
<td>Lui Sha</td>
<td>real-time systems and scheduling, cyber-physical systems, medical systems engineering</td>
</tr>
</tbody>
</table>
Theory and Algorithms

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

**Timothy Chan**
joining fall 2017
computational geometry

**Chandra Chekuri**
algorithms, optimization

**Jeff Erickson**
computational geometry and topology, algorithms

**Michael Forbes**
joining fall 2017
computational complexity

**Brighten Godfrey**
networked systems theory, distributed algorithms

**Sariel Har-Peled**
computational geometry, geometric approximation algorithms

**Sheldon Jacobson**
optimization, operations research

**Alexandra Kolla**
complexity theory, spectral methods for graph algorithms

**Ruta Mehta**
algorithmic game theory, mathematical economics, efficient algorithms

**Leonard Pitt**
artificial intelligence, theoretical computing

**Manoj Prabhakaran**
cryptography, secure multi-party computation

**Tandy Warnow**
multiple sequence alignment, phylogenomics, metagenomics, historical linguistics

Related Research Efforts and Groups

- Information Trust Institute in the Coordinated Science Lab
- Carl R. Woese Institute for Genomic Biology
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 Academic Council: http://publish.illinois.edu/computersciencegradacademiccouncil
CS Graduate Student Organization (CSGSO): https://www.facebook.com/csgso

College of Engineering
Home to 12 academic departments, 8 research centers, and 15 top-5 ranked degree programs, the College of Engineering’s students, faculty, and alumni set the standard for excellence while solving the world’s greatest challenges.

College of Engineering: http://engineering.illinois.edu/academics/graduate
Alumni Interviews: http://engineering.illinois.edu/academics/graduate/meet-alumni
Engineering Update: http://engineering.illinois.edu/student-life/engineering-update
Meet Engineering Graduate Students: 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/current-students
Campus wide Initiatives: http://grad.illinois.edu/initiatives
Student Handbook and Policies: http://grad.illinois.edu/handbooks-policies
Diversity and Inclusion: http://grad.illinois.edu/eep/diversity
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
Housing: http://housing.illinois.edu
Student Health Insurance: www.uhcsr.com/illinois

Financial Aid Opportunities
CS @ ILLINOIS 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 CS @ ILLINOIS, the College of Engineering, the Graduate College, or may apply to external funding agencies like the NSF. For more information on funding opportunities, contact Viveka P. Kudaligama, Coordinator of Graduate Programs, by phone at 217.300.2276, or by email at kudaliga@illinois.edu.
Finding An Apartment
Contact the Tenant Union at the start of your housing search.
Tell us what type of apartment you want—number of bedrooms,
furnished, or unfurnished, preferred distance from campus
(in blocks or miles) and price, and we'll help you find one with
a good landlord.

Landlord Complaint Records
While you are still narrowing down choices, check
landlords' complaint records and see how they compare.
You can call, visit our office, or send the landlord names by email to
tenant@illinois.edu.

Lease Review
An experienced housing counselor will review your lease with you
and make suggestions for changes to discuss with the landlord
BEFORE you sign the contract.

Tenant Union, a student fee supported
service at the U of I provides free help with:

Protect Yourself by Following These Tips:

1. Do not put down money to hold
   a place. Pay nothing until the
   landlord has signed the lease.
2. Be sure to see the exact unit
   you'll be renting.
3. Beware of any construction not
   yet completed. New buildings
   are often not ready for move-in
   until weeks or months after
   classes start.
4. Don’t sign a lease unless you're
   100% positive you really want
   the place because there is
   NO WAY TO BREAK A LEASE.
5. Choose roommates cautiously;
   you will be legally responsible
   for paying each other’s rent,
   utilities, late fees, and charges
   for damages.
6. Take PHOTOGRAPHS on the last
day of the lease so you can defend
yourself against bogus charges for
cleaning or damages.
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.

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.

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.
Entrepreneurship is not just about startups, it is also a way of thinking and an approach to solving problems—a catalyst to inspiring the next generation of innovators. This mindset is an important part of our culture and is fully integrated across the curriculum, and is supported in and out of the classroom.

Our faculty and graduate students are commercializing technology that provides:

- **A tool to passively learn a foreign language while browsing the web.**
  [Thomas Reese (MS CS ’15), FlipWord]

- **Techniques that make it possible to understand design at the scale of the web.**
  [Professor Ranjitha Kumar and Dr. Jerry Talton (BS CS ’03, MS ’05), Apropose]

- **Runtime verification-based techniques to improve the safety, reliability, and correctness of software systems, including those embedded in automobiles.**
  [Professor Grigore Rosu, Runtime Verification]

- **An adaptive and scalable run-time system to support highly complex parallel programming applications.**
  [Professor Laxmikant "Sanjay" Kale, Charmworks]

- **An advanced ability to secure online systems using a novel network verification tool.**
  [Professors Brighten Godfrey and Matthew Caesar, with Dr. Ahmed Khurshid (PhD CS ’15), Veriflow Systems]

- **New and better search engines by enabling deep data-aware vertical web searching.**
  [Professor Kevin Chang, Cazoodle]

- **Real-time structural health monitoring of bridges and other civil infrastructure through a novel wireless smart-sensor network.**
  [Professor Gul Agha, Embedor Technologies]

- **A platform to turn every object into an interactive display.**
  [Dr. Brett Jones (BS CS ’08, MS ’10, PhD ’15), Dr. Kevin Karsch (PhD CS ’15), and Dr. Raj Sodhi (BS CS ’08, MS ’10, PhD ’15), Lumenous]

- **Revolutionary text understanding and analytics tools for e-discovery by exploiting novel machine learning methods.**
  [Professor Dan Roth, NexLP]

Champaign-Urbana was designated a Best Start-Up City in America for an ecosystem that turns innovators into entrepreneurs. [Popular Mechanics January 2015]
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 of Data Science and Analytics (ADSA): www.adsauic.com
- Association for Computing Machinery (ACM): https://www-s.acm.illinois.edu
- CocoaNuts, for iOS developers: bit.ly/cocoanutsdev
- CS Graduate Student Organization (CSGSO): www.facebook.com/csgso
- Founders, for entrepreneurs: www.founders.illinois.edu
- HackIllinois: www.hackillinois.org
- 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 60-77% less than cities like Berkeley, San Diego, and Boston, where our peer institutions are located. [Sperling's Best Places]

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

See video and learn how Champaign-Urbana is a micro-urban center on the rise. Visit www.micro-urban.com and www.champaigncenter.com

Campus Activities, Amenities, and Resources

- 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
- Activities and Recreation Center (ARC): www.campusrec.illinois.edu/facilities/arc

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.
All the Amenities of Big-City Living Without the Hassles

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, and dance performances; and fantastic health and recreational facilities.