CS @ Illinois
Graduate Programs
Today’s Focus

- Why attend graduate school?
- How to choose the right program?
- What does CS @ Illinois have to offer?
Why go to Graduate School?
“Completing a Ph.D. is a long hard road with many potholes and washed out bridges along the way. You may run over some land mines and have to stop and turn around and explore other routes. If the goal is important enough to you, then the obstacles will not prevent you from completing your journey.”

By Ronald Azuma
Advantages

An M.S. or a Ph.D. offers students

- Collaboration with a wide range of researchers
- An opportunity to work on solving problems to difficult questions
- An opportunities to grow and strengthen knowledge in the area of computer science and research
- A way to open more doors to job opportunities
Why Obtain a PhD

- Have passion for research
- Allows freedom to focus on any problem you want to solve
- Opens up employment opportunities within the academia and research fields
- Collaboration with a wide range of researchers across the world
- It is fun!
What you get from a PhD

- Ability to identify interesting problems
- Come up with a plan of execution
- Get used to failure
- Execute your plan
- Sell it to others
  - Written in the form of publications
  - Orally at conference presentations
Identify Career Goals

- Identify your ultimate career goal
- Investigate the educational background required to reach this goal
- Investigate the types of industries where such a position would be obtain
- Evaluate which graduate program and degree makes the most sense to help you reach your goal
“Being a graduate student is like becoming all of the Seven Dwarfs. In the beginning, you are Dopey and Bashful. In the middle, you are usually Sneezy, Sleepy, and Grumpy. But at the end, you are Doc and Happy.”

by Ronald Azuma
Choose the Right Graduate Program

It is important to select a graduate program and college that

- Fits your learning styles
- Fits your educational and career goals
- Has research opportunity that interests you
- Faculty that match your research interest
“Let me tell you the secret that has led me to my goal. My strength lies solely in my tenacity”

by Louis Pasteur
Applying to Graduate School

- **Investigate** application **deadlines** and required application material well in advance and apply early
- **Involve** yourself in **research** as an undergrad—sign up for a research course to gain research experience
- Take time to **interact** with **faculty**
- **Select** your **recommenders carefully**—select ones that can reference your research and academic ability
Why CS @ Illinois for Grad School?
We Believe...

- That computing is (real) life.
- That addressing the computing challenges of tomorrow requires a collaborative, multi-disciplinary approach.
- That you can’t tackle a problem without taking on the entire problem chain.
- That a flexible approach, grounded by mastery of the fundamentals, leads to transformational solutions.
- That students are young colleagues and faculty are older students.
Our Philosophy is to build Grads into a

- A **SCHOLAR** by absorbing large bodies of research literature and critically analyzing the state-of-the-art along with its shortcomings

- An effective **COMMUNICATOR** by learning how to express ideas clearly in writings, individual meetings, and public seminars

- An **INNOVATOR** by creating new theories, technologies, or paradigms that inspire people in research communities and industry
It’s a Top 5 National Ranking Program
Offering a Large Environment

- **60+ Faculty**
- **1300+ Undergrads**
- **550+ Graduates**
- **1225 (approximately) CS PhD Awarded**
With a Personal Touch

- Average is ~4.2 PhD students per faculty member

PhD Students per Advisor

- >12
- 10-12
- 7-9
- 4-6
- 1-3

# CS faculty with this many PhD students
And Many Research Area Disciplines

- Algorithms & Theory
- Architecture, Parallel Computing & Systems
- Artificial Intelligence
- Bioinformatics & Computational Biology
- Databases & Information Systems
- Graphics, Visualization & HCI
- Scientific Computing
- Systems & Networking
- Programming Languages, Formal Methods & Software Engineering
Corporate Partners  – CJ Coleman

- **The Corporate Connection**
  - Strategic recruiting and research services for 24 companies seeking CS and ECE students
  - 48 in startup program

- **Adhoc Opportunities**
  - For Tech talks, Corporate days and HACKS/competitions

- **Work with Student Groups**
  - Sponsor events with ACM, WCS, LCSC, HACKIllinois, Founders, CocoaNuts, CSGSO and PURE

- **Research Collaborations**
  - Sponsored research and technology transfer
Dynamic Student Body

**Highlights of Accomplishments...**

CS students head to World Programming Finals – 7 of last 8 years

CS PhDs win 2 of 13 inaugural Google Fellowships

CS PhD Joshua Hailpern wins Autism Speaks! Fellowship for speech visualization work *aiding autistic children*
With a Remarkable Student Community

- **Largest** student chapter of the ACM in North America

- Rich calendar of events that connect students, faculty, sponsors, alumni ...

- Watson wins on Jeopardy (Sponsored by IBM)
Award-Winning Faculty

Bill Gropp
NAE Member

Karrie Karahalios
Sloan Fellow

Klara Nahrstedt
Humboldt Fellow

Using MPI
Portable Parallel Programming with the Message-Passing Interface
second edition

William Gropp
Ewing Lusk
Anthony Skjellum
ARCHITECTURE, COMPILERS, AND PARALLEL COMPUTING

Adve  Adve  Garzaran  Kale  Padua

Rutenbar  Snir  Torrellas  Zilles

DATABASE, INFORMATION SYSTEMS, AND BIOINFORMATICS

Chang  Han  Sinha

Winslett  Zhai

ARTIFICIAL INTELLIGENCE

Amir  DeJong  Fleck  Forsyth  Hockenmaier

Hoelm  LaValle  Pitt  Roth  Smaragdis

GRAPHICS AND HUMAN COMPUTER INTERACTION

Bailey  Fu  Hart

Karahalios  Kirlik  Yu
PROGRAMMING LANGUAGES
FORMAL METHODS
SOFTWARE ENGINEERING

SYSTEMS AND NETWORKING

Scientific Computing

Theory and Algorithms
And Our Research Strengths...
How to Become a part of CS @ Illinois
Choose a Program...

Computer Science

Ph.D.

MS

Bioinformatics

MS (w/ thesis)

Professional Master’s (MCS)
(Online or On-Campus)

For more information, visit cs.illinois.edu/prospective-students/graduate-students.
MS Program

- Complete 28 coursework hours
  - 9 to 12 credits of Breadth coursework
  - 12 credits of CS 500-level coursework

- Complete 4 credits of thesis research (CS 599)
Professional Master’s (MCS) Program

- Complete 32 coursework hours
  - 12 to 16 credits of Breadth coursework
  - 12 credits of CS 500-level coursework
- No thesis requirement
- Tuition-reimbursement seeking program
Ph.D. Program: Flexible Program of Study Curriculum

- Students are assigned a Program of Study Committee of 3 faculty advisors to design and approve curriculum
- Stimulates faculty interaction and student independence
- Advantage: breadth, depth, diversity of Illinois course offerings
  - Math offers 60+ grad courses
  - Interdisciplinary areas with ECE, Bio., Chem., Psy., Linguistics

For more information, visit cs.illinois.edu/current-students/graduate-students/phd-students
Ph.D. Program Requirements

- Total number of hours required: **96**
  *(64 with an approved M.S.)*

  - **Coursework hours required: 48**
    *(16 with an approved M.S.)*
    
    - **Advanced Coursework hours required: 24**
      *(16 with an approved M.S.)*

  - **Thesis Research (CS599) hours required: 32**

- Qualifying Exam
- Prelim Exam
- Final Exam
Tuition and Assistantships

The majority of M.S. and Ph.D. graduate students hold either a

- Fellowship
- Teaching Assistantship, or
- Research Assistantship

For more information on the University of Illinois graduate tuition and fees, visit [www.illinois.edu/goto/gradtuition](http://www.illinois.edu/goto/gradtuition)
Apply to CS @ Illinois by

- Completing the online application
- Paying the application fee
- Submitting a “Statement of Purpose”
- Submitting three “Letters of Recommendation”
- Submitting a “CV/Resume”
- Submitting TOEFL or IELTS scores (for international students only)
- Submitting “Official” transcripts
- Completing CS Interest form

Complete outline of the application process and GPA requirements is located at cs.illinois.edu/prospective-students/graduate-students.
By the Applications Deadlines

Ph.D. and M.S. Program – Fall entry only
December 15th

Professional Master’s (M.C.S.) & M.S. BioInformatics
October 15th for spring & January 15th for fall

For more information on admission and to apply, go to cs.illinois.edu/prospective-students/graduate-students
Join our Team at CS @ Illinois
For More Information

Call (217) 333-4428

Email academic@cs.illinois.edu

Visit cs.illinois.edu/prospective-students/graduate-students

Thanks for your interest in CS @ ILLINOIS!