

Session 1:
Overview of CSGrad4US program
Components and goals of its mentoring program

Thursday, September 5, 2024 (7-8:30pm ET)



CSGRAD4US

Graduate Fellowship & Mentoring Program



Congratulations!

... on deciding to pursue research and a PhD in a CISE field

... on being awarded an NSF CSGrad4US Fellowship

Fellowship Goal:

Increase the number of domestic researchers completing a PhD in a CISE field.

CSGrad4US Mentoring Program

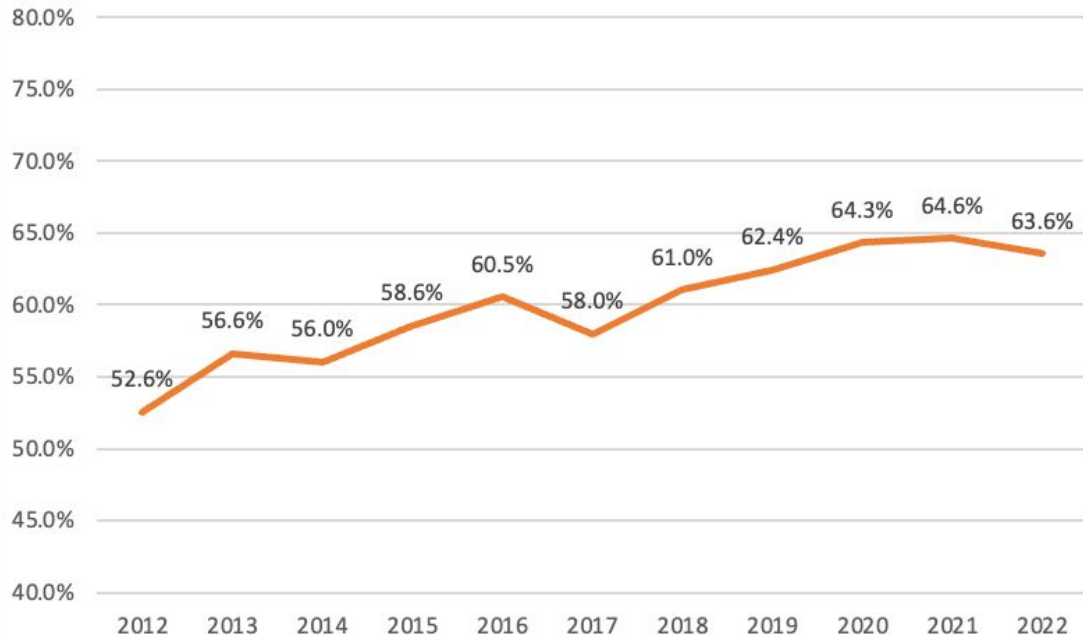
- Goals and Program Structure
- Cohort 4 Stats
- Organization and Expectations

Getting a PhD

- CISE PhD programs
- Research and Career Paths
- Overview of admission timelines

The domestic PhD production of national importance

Share of CIS Doctorates Who are Temporary Visa Holders at Graduation



Domestic PhDs decreased from

- 69% in 1985 to
- 37% (IPEDS data)

Today, almost 60% of new PhDs in the US take industrial positions (CRA)

U.S. Needs domestic PhDs in CISE fields

- CS/IS Departments are expanding
 - CS and IS UG enrollment still booming
 - computing courses are increasingly taken by non-majors
 - faculty retirements
- Startups rely on PhDs to drive innovation
- 3000 openings annually for CS research scientists projected in the next decade
- US Government labs need domestic PhDs
- Only 37% of PhDs awarded to domestic students hurts US research competitiveness
- International PhD graduates have increasingly more options in other countries

NSF CSGrad4US Fellowships

- **Vision & Funding**
 - National Science Foundation (NSF)
 - Directorate for Computer and Information Science and Engineering (CISE)
- **Mentoring**
 - CRA, CRA-E, CRA-WP
 - Program Leaders
 - Mentor Program Associates
 - Coaches
 - Area Advisers (determined by research area need)
 - Panelists
- **YOU!** The future Fellows = Mentees
 - You become a Fellow when entering a CISE PhD program

NSF's Role and Mission

The National Science Foundation ([NSF](#)) supports basic research and people to create knowledge that transforms the future.

- Its mission is to promote the progress of science and to advance the national health, prosperity, and welfare.

CISE's mission is to enable and support leadership in computing, communications, and information science and engineering

NSF supports over 85% of all federally-funded academic CS research (Source: NCSES).

A Fellow must enroll in a CISE PhD program

Includes PhD programs offered by

- Computer Science (CS)
- Computer and Information Sciences (CIS)
- Computer Engineering (CE)
- Schools or College of Computing
- Some interdisciplinary programs (generally, the student applies to a CISE department as their home department)

AND

- PhD programs with [CIP codes](#) 11.01 (CIS), 11.04 (IS), 11.07 (CS), or 14.09 (CE) are CISE PhD programs.

PhD programs with other CIP codes need NSF approval (approval not ensured).

CRA and CRA-E

[CRA](#)'s mission is to enhance innovation, strengthen research, and advance education in computing.

- CRA has over 200 members representing academia, industry, and governments in North America.

[CRA-E](#) focuses on building a pipeline for society's needs of a continuous supply of talented and well-educated computing researchers.

Goals of the Mentoring Program

- Provide guidance on the preparation of the application material through group mentoring and individual coaching
 - Clarify expectations and the application process and PhD study
 - Help identify research areas
 - Advice and guidance on writing your statement of purpose (SOP)
 - Guidance on how to identify potential letter writers (generally 3)
 - Select appropriate CISE PhD programs to apply to
 - Advise on acceptances
- Provide insight into how to be successful in graduate school and research
- Offer mentoring through the first year in graduate school

Why a Mentoring Program?

Preparing a competitive PhD application takes effort.

Students returning from the workforce have different needs than students applying while in school.

- Contact with faculty and grad TAs is not recent
- Prior experiences may not have focused on grad school
- Coursework and exams may no longer feel natural



From the workforce to graduate school: How do PhD programs view us?

Students returning from the workforce to grad school are generally more mature and disciplined, with

- a broader perspective on interests
- technical and soft skills experience
- experience with *real* tools, data
- experience working and managing project teams



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Who is running the mentoring program?

CRA Staff

4 Mentoring Program Leaders

2 Mentoring Program Associates

25 Coaches (16 coaches continuing from earlier cohorts)

Program Leaders



Susanne Hambrusch, Purdue University



Russ Joseph, Northwestern University



Lori Pollock, University of Delaware



Kelly Shaw, Williams College

Mentoring Program Associates



Dorian Arnold, Emory University



Maria Gini, U of Minnesota

CRA Staff



Erik Russell, CRA, Director of Educational Initiatives



Kayley McDonald, CRA, Program Associate



Sheila Khan, CRA, Program Associate



Eniola Idowu , CERP, Research Associate

External Evaluator University of Washington



Erin Carll

Associate Director of the Center for Evaluation & Research for STEM Equity (CERSE, “SER-see”)

Program Evaluation

Program evaluation will take place throughout the mentoring program and continue during grad school

Goals

- Learn about your experiences before and during the program
- Identify what works well, what impacts progress, what can be improved

How?

- Online surveys & virtual focus groups
- Polls and other occasional opportunities for your feedback

Your participation in evaluation will lead to a better program!

Email: ecarl1@uw.edu (noreply@qemailserver.com)

About Cohort 4

71 CSGrad4US awards were made and 70 accepted
70 Mentees registered for the mentoring program

Introductions: Meet Fellow Mentees in a Breakout

Tell others about yourself

- 2 sentences about your background
- Your reasons for pursuing a PhD and research
- How did you hear about the CSGrad4US Fellowships?
- Share something unique about you

20 minutes total time

Components of the Mentoring Program

- Group Mentoring Sessions
- Panels
- Individual Coaching
- Weekly Office Hours
- Area Advisers
- Assessment

To support active communication

- Discord server to support community building among Mentees
- Share advice and insight from cohort 1 and 2 Fellows
- Weekly office hours for individual advice

Group Mentoring Sessions

Provide general application, admission, research, PhD programs, grad school, and research career information:

1. Overview: Components and Goals of the Mentoring Program
2. Preparing a Strong PhD Graduate Application. What skills, qualities and experiences PhD programs are looking for.
3. PhD Application Process and your Decision
4. Research as the Key PhD Degree Component
5. Succeeding in Graduate School
6. Deciding on an Admission Offer to Accept (March 2025)

Held on Thursdays 7pm ET; will be recorded

Panels

1. *Tuesday, October 1, 7-8:30 PM EST*
 - a. What I wish I knew when I applied to graduate school
Panelists are 3rd+ year PhD students
2. *Thursday, October 17, 7-8:30 PM EST*
 - a. Q&A with prior cohort CSGrad4US Fellows
3. *Tuesday, October 29, 7-8:30 PM EST*
 - a. What I wish I knew when I started graduate school
Panelists are recent PhD graduates

Will not be recorded

Coaching

12-week coaching includes

- individual advice, guidance and feedback
- builds on material covered in the mentoring sessions
- research area advisers are available (for Mentees whose coach is not in the chosen research area)

Fall 2024: each Mentee completes an application package and identifies a list of CISE PhD programs

Spring 2025: a Mentee decides on the acceptance to a CISE PhD program, or has a plan on how to increase being competitive for applying in 2025

Think carefully about 1 vs. 2 application opportunities!

Have You Met With Your Coach?

- Please reply to the poll
- If you haven't met/communicated with your coach yet, please reach out to them.
- Consider discussing the content of this session with your coach

What we expect from each Mentee

- Attend and participate in mentoring sessions whenever possible (recordings will not have breakouts)
- Attend panel sessions
- Come to office hours or contact us when you have questions or concerns
- Work with your coach and follow the (tight) time frame
- Complete your application and identify a set of CISE programs/schools



How does the Fellowship Stipend work?

- Must be a full-time student in a CISE PhD program
- \$37K stipend for 12 months;
- \$16K educational allowance covers Fellow's fees and tuition; paid directly to the institution.
- It is a 0.5 appointment.
 - What does this mean? The other 0.5 appointment is taken up by courses (including research)
- Please refer to the [NSF CSGrad4US Fellowship Administrative Guide](#) for specifics about fellowship stipends.
- Mentee accepts an admission and lets CRA know.
 - CRA establishes a subaward with the institution
 - Funds are paid by CRA to the institution (one year at a time)
- 3 years of support can be used within 5 years
- Fellow and advisor have some reporting requirements

Related Questions

- **Does the Fellowship Program provide financial support?**
 - For Mentees:
 - Up to \$750/mentee grad application reimbursement
 - \$1500/mentee for technical CISE conference travel
 - For Fellows:
 - A one time \$1500 budget to attend a CRA-WP Grad Cohort Workshop. Must be enrolled in, and ideally finishing the first year of, your CISE PhD program.
- **Can a PhD student on the fellowship take on additional employment?**
 - summer internships are common; should complement the educational/research experience (see GRF document)
 - accepting outside employment can impact advisor's support (as an advisor) and may violate fellowship rules / institution must be certify Fellow is enrolled in the PhD program full-time
 - adding 1/4-th time academic appointment is up to the adviser and the institution
- **More questions?**
 - Check out the Mentee and Fellow FAQs at <https://cra.org/csgrad4us/#tab-id-5>

Canvas and Google Drive

- **Canvas** is a learning management system
 - Allows us to organize course materials
 - Will include Resources on PhD related matters and Postings of researchers looking for PhD students (under development)
- **Google Drive** will be used to house documents with which you will work
 - You should have received an invitation to edit a folder titled your Lastname, Firstname.
 - Please keep copies of your work in the GD folder.
 - Used to answer questions in office hours or other situations
 - Your coach has access to your Google Drive folder and will be able to collaborate with you on any documents you create



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Canvas Demo

PhD Students Are a Key Driver of Research and Innovation

CSGRAD4US & mentoring
program

Computer and Information Science and Engineering Graduate Fellowships



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Widening Participation



CRA-E
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Education

CISE Researchers Pursue Many Areas



CISE Research happens in CS, CIS, CE

What programs are a CISE Ph.D. program?

Programs offered by a

- Computer Science (CS) Department
- Computer and Information Sciences (CIS) Department
- Computer Engineering (CE) Department
- School or College of Computing
- most Information Science (IS) Departments

See FAQ's at <https://cra.org/csgrad4us/#tab-id-6> for more guidance on CISE programs

CS Departments are administratively housed where?

- Historically, CS departments are in
 - Engineering Colleges, e.g., Illinois, Michigan, NC State, VT,, U. of New Mexico
 - Arts/Sciences Colleges, e.g., Purdue, Iowa, Maryland
- More recently, CS departments are also in computing focused colleges/schools
 - Computing, e.g. Georgia Tech, CMU, MIT, Clemson
 - Computer & Information Sciences, e.g Cornell, UMass, Pitt, UC Irvine, IU, Wisconsin
- Information Schools may not contain CS, e.g. Penn State (IST), UW, Michigan

In many institutions, CISE programs exist in more than one department.

Admission is generally not coordinated!



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Pursuing a PhD (with a CS UG degree)

Your undergraduate education = foundations + breadth in CS
through shared classroom experiences

Have an MS degree? May or may not have prepared you for research

Your PhD = research apprenticeship with research expert (advisor)
+ other mentors
= deep dive into research problems to advance knowledge
+ training in research process
+ background courses
+ milestones

Typical PhD Career Options

Academic

- Tenure-track faculty (R1/R2, MS, 4-years institution)
- Teaching or research faculty at R1/R2 institution

Non-academic Research

- Scientist in a research lab (industry, government, national labs)
- Applied research positions

Research-driven Leadership

- Entrepreneur, start-up, consulting, technical leadership



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**CSGrad4US Is Here to Make It
Happen for YOU!**



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CSGrad4US Mentee Timeline

- Undergrad degree in CS or related area
- Industrial experiences
- Interest in a PhD

- Ask letter writers
- Give them resume, personal statement & transcripts
- Finalize application materials and get feedback
- Submit applications

Before being selected as a Fellow

Early Fall 2024

Late Fall of 2024

Spring 2025

- Update your resume
- Draft personal statement/SOP
- Identify letter writers
- Select schools to apply to
- If needed, study for and take GREs

- Hear from schools
- Visit schools
- Make a decision!

[CSGrad4US 2024 Schedule](#)



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School Admissions Timeline

- Departments identify admissions goals (qualitative and quantitative targets)
- Dec-Jan:
 - Assemble applicant portfolios
 - Comprehensive and holistic portfolio reviews
- Feb-Mar:
 - Down selection processes may be strictly based on portfolio or may be supplemented by interviews
 - In-person campus visits (may occur before or after admission decisions)
- Apr: Admitted applicant decision (typically April 15th deadline)
 - Admitted students are supported as TAs or RAs or by Fellowships



Reflective Activity

- Think back to when you graduated from college with your highest degree.
 - How did you view getting a PhD then?
 - What changed your view (if it did)?
 - How can this fit into your application statement?
- Where do you see yourself in 7 years?
- Discuss with your coach (put your writing on the GDoc or Canvas)

QUESTIONS?

Please complete the poll

SESSION 2

Thursday, September 12, 7:00-8:30pm ET
Preparing a Strong PhD Graduate Application



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