

Juno Bartsch

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EDUCATION

Virginia Tech (VT), Blacksburg, VA Ph.D. expected May 2029

Program: Computer Science & Applications; **Certificate:** Engineering Ed.; **GPA:** 4.0

Research: Understanding rural parental conceptions of CS education and careers

Courses: Participatory Design, Models and Theories of Human-Computer Interaction, Qualitative Research in Engineering Education, Research Methods in Computer Science

REACH Lab: Lab Lead for security and tech support, facilitated an Overleaf workshop

Haverford College, Haverford, PA B.S., May 2024

Majors: Computer Science and Education Studies; **Minor:** Data Science; **GPA:** 3.75

Thesis: Supporting Minoritized Learners in Introductory Computer Science Courses

Study Abroad: Aquincum Institute of Technology, Budapest, Hungary; 4.0 GPA

Selected Courses: Software and Society, Artificial Intelligence, Analysis of Algorithms, Operating Systems, Research Methods and Statistics, Empowering Learners, Special Ed

RESEARCH INTERESTS

I am interested in centering the needs of minoritized, neurodivergent, and disabled learners in computer science. My current goal is to improve technologically-mediated communication with these learners to increase their sense of belonging and retention in higher education.

RESEARCH EXPERIENCE

Senior Thesis, Haverford and Bryn Mawr Colleges Spring 2024

- Completed a literature review on reasons students struggle in introductory computer science (CS1) courses and pedagogical strategies to mitigate these barriers
- Surveyed and interviewed more than 40 students about their experiences in CS1
- Compiled research-backed, feasible strategies to improve student experiences in CS1
- Submitted to the SIGCSE Technical Symposium on Computer Science Education 2025

VariAbility Lab, Carnegie Mellon University Summer 2023

- Completed research on Mixed-Ability Collaboration as part of CMU REUSE, specifically on “GRACE: Gesture and Gaze Recognition for Accessible Collaborative Environments”
- Programmed a Tobii Pro Fusion eye tracker using the Tobii SDK in Python
- Implemented a custom version of the Tobii I-VT Fixation Filter to process gaze data
- Created a website which uses Javascript to highlight relevant areas of interest (AOIs)
- Built a server to transmit gaze data to the site and display AOIs in real time

CAIR Lab, Rochester Institute of Technology Summer 2022

- Completed the Computational Sensing for Human-Centered AI REU, specifically in “Developing Gaze-Enabled Magnification and Mouse Systems for Low Vision Users”
- Built a website using the GazeCloud API to collect eye-tracking data from users
- Added a customizable window magnifier which saved user settings across the site
- Conducted human subject trials, data analysis, and compiled a final research paper

TEACHING AND MENTORING EXPERIENCE

Office of Academic Resources, Haverford College Fall 2023, Spring 2024

STEM Head Tutor, CS Lead Tutor, & Peer Tutor

- Coordinated access to a new lab for CS tutors, organized the team transition to Slack for communications, and developed a neurodiversity training for peer educators
- Partnered with introductory CS students to explain concepts, develop algorithms, review midterms and course content, debug Python code, and complete problem sets

Department of Computer Science (CS), Bryn Mawr College
Teaching Assistant (TA)

Fall 2022, Fall 2023

- Worked with entry-level CS students to develop algorithms and debug Java code
- Engaged students in participatory, collective learning to improve their skills in coding and explanation as well as their ability to find resources independently
- Developed time-management, multi-tasking, and collaborative skills with other TAs

Philadelphia Futures, Philadelphia, PA
Instructor of Coding and Robotics

Summer 2021

- Implemented a new curriculum and rubric for the pilot program of the course
 - Prioritized collaboration, debugging, problem-solving, and creativity
- Taught students to communicate with robots utilizing block and text-based Javascript
- Welcomed and incorporated student feedback through open office hours

HONORS AND AWARDS

- New Horizons Graduate Scholar ('24), a prestigious engineering research network at VT
- Last Mile Fellow for Broadening C.S. REU Participation ('22)
- Alan Paller Honor Scholar for performing in the top 500 of CyberStart participants ('22)
- National Cyber Scholar w/ Honors ('22-23), for CyberStart performance in the top 1%
- Ira D. A. Reid Scholar through Haverford College ('20-24) for demonstrating a strong commitment to building successful multicultural communities
- Chesick Scholar ('20-24), a selective program for first-generation Haverford students
- Haverford Horizons Leadership Institute and Summer Social Justice Institute ('20)

CONFERENCE PRESENTATIONS

“Breaking Down Barriers: Supporting Minoritized Learners in Undergraduate Computer Science Courses at Liberal Arts Colleges,” SHPE Poster Fair, Blacksburg, VA, November 2024.
“Access-CS1: Peace, Social Justice, and Global Citizenship in CS Education,” CPGC Publicly Engaged Scholar Finalist Presentations, Haverford College, Haverford, PA, May 2024.
“GRACE: Gesture and Gaze Recognition for Accessible Collaborative Environments,” REUSE Poster Session, Carnegie Mellon University, Pittsburgh, PA, August 2023.
“Gaze-Enabled Magnification for Low Vision Users,” Undergraduate Research Symposium, Rochester Institute of Technology, Rochester, NY, July 2022.
“Robotics at Futures,” CPGC Poster Fair, Haverford College, Haverford, PA, October 2021.

UNIVERSITY SERVICE

Disability Caucus Co-Chair, Virginia Tech 2024-2026

- Elected as the Co-Chair to facilitate community building and disability activism
- Coordinated biweekly meetings, communication, and outreach efforts for the Caucus

BiCo CyberStart, Haverford and Bryn Mawr Colleges 2022-2024

- Founded this club to get students interested in programming and cybersecurity
- Fostered a community of problem-solving, creativity, and access to technical resources

Disability Advocacy for Students at Haverford (DASH), Haverford College 2021-2024

- Distributed information and resources to the student body via a biweekly newsletter
- Co-led projects to improve accessibility on campus such as marking stairs for visibility

TECHNICAL SKILLS

Programming: Java, Python, C, Kotlin, JS, HTML; **Certifications:** GIAC GFACT, TestOut PC Pro