

Benjamin Hardin

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Interests: *Human-Computer Interaction, Explainable AI, User Interfaces, Autonomous Systems*

Skills: C/C++, Python, Java, Swift, SwiftUI, Javascript, MySQL, Dart, React, ARM/x86-64 Assembly, OpenGL, Unity, Matlab, R, Agile/Scrum, Xcode, Git, Flutter, Unix

Education

University of Oxford, Oxford, UK

October 2022 – May 2026

Ph.D. in Computer Science

Advisors: Prof. Lars Kunze & Prof. Marina Jirotko

Research interests: Psychological Safety and Trustworthiness of Autonomous Vehicles, Explainable AI

Purdue University, West Lafayette, IN, USA

August 2018 – May 2022

B.S. in Computer Science Honors

GPA: 3.81/4.00

Mathematics Minor • Certificate in Entrepreneurship and Innovation • Honors College • Dean's List

Study Abroad Experiences:

– **Computer Science at ETH Zürich** (Spring 2022 semester)

Focus: Human-Computer Interaction (HCI), Mobile Health, 3D Computer Vision

– Honors College 4-week courses in Italy (May 2019)

Research Experience

Graduate Research Assistant, University of Oxford

October 2022 – Present

- Investigating the experiences of teleoperators of autonomous vehicles
- Defining psychological safety of autonomous vehicles and developing new interfaces to improve this safety

Networks Research Project, Purdue University

January 2021 – October 2022

- DARPA Software Defined Networking (SDN) project under supervision of Distinguished Professor Douglas Comer to change the interpretation of MAC addresses to provide reliable VM migration.
- Designed tests utilizing Mininet and ONOS to simulate the architecture and test network performance, working 10 hrs/week under the supervision of Distinguished Professor Douglas Comer.
- Collaborated with a researcher from the Open Networking Foundation to bring industry advice to our work.

Professional Engineering Experience

Apple, San Diego, CA

January 2025 – July 2025

Research and Development Intern – Wireless Technologies and Ecosystems

Microsoft, Redmond, WA

June 2022 – September 2022

Software Engineer Intern – Azure App Service

- Developed Azure WebJobs for Windows Containers that allow developers to run extra functions on their container sites. Built with C#.

Microsoft, Redmond, WA

May 2021 – August 2021

Software Engineer Intern – Azure App Service

- Designed and implemented Remote Debugging on Azure Windows containers to allow customers to debug NT services and reduce developer costs. Built with C#.
- Future-proofed Remote Debugging to support Visual Studio 2017, 2019, and 2022.
- Architected Azure Site Extensions for Windows containers to deliver greater extensibility and metrics to developers about their containers.

General Motors, Warren, MI

June 2020 – August 2020

Vehicle Architecture Intern – Automated Driving

- Consolidated vehicle sensor alignment with Python, reducing the alignment process from 2-3 weeks to 3-5 days.
- Implemented multicore computation in sensor alignment, resulting in runtimes 2-3 times faster.
- Automated the OS updates for data collection vehicles to decrease the time to test new features.

General Electric Aviation, Grand Rapids, MI

June 2019 – August 2019

Software Engineer Intern – Model-Based Development Team

- Designed algorithms utilizing Python and MySQL to manage Enterprise Architect models.
- Coordinated with Aviage Systems to fulfill Comac C919 aircraft requirements and documentation.

Teaching & Mentoring

Requirements Engineering Teaching Assistant – Oxford Dept. of Computer Science

Fall 2023

Software Group Design Mentor – Oxford Dept. of Computer Science

Spring 2023

C++ Programming Lab Demonstrator – Oxford Dept. of Engineering Science

Spring 2023

Undergraduate Teaching Assistant – Purdue CS252 Systems Programming.

August 2021 – December 2022

- Under Professor Gustavo Rodriguez-Rivera, I led 2 lab sessions each week to explain concepts, grade lab assignments, and write exam questions.

Merit-Based Awards

Capgemini Studentship

October 2022 – May 2026

Full-tuition scholarship for PhD studies

Lilly Endowment Scholarship

August 2018 – May 2022

Full-tuition scholarship for undergraduate studies awarded to one student in my county for dedication to academics, leadership, community, and extracurriculars.

Purdue College of Science Zimmerly Scholarship

May 2021

Salesforce Scholarship

April 2021

Purdue CS Corporate Partners Scholarship (Twice Awarded)

April 2019, April 2020

Publications

Human Involvement in Autonomous Decision-Making Systems. Lessons learned from three case studies in aviation, social care and road vehicles

*Pericle Salvini, Tyler Reinmund, **Benjamin Hardin**, Keri Grieman, Carolyn Ten Holter, Aaron Johnson, Lars Kunze, Alan Winfield, and Marina Jirotko*

Frontiers in Political Science

[PDF](#)

A Cross-Sectional Examination of Evictions in Lafayette, Indiana in August 2020 during a Gap in Federal and State Eviction Moreatoria

Mary Lang, Justin MacNeill, Ethan Edwards, Ethan Glaser, Benjamin Hardin, Jared Huber, Elizabeth Spyrtatos, Jason Ware

Local Development & Society Journal

[PDF](#)

DCnet: Evaluation of a New Data Center Architecture

Benjamin Hardin, Douglas Comer, Adib Rastegarnia

2023 Innovation in Clouds, Internet, and Networks (ICIN)

[PDF](#)

- **On the Unreliability of Network Simulation Results From Mininet and iPerf**

Benjamin Hardin, Douglas Comer, Adib Rastegarnia

2023 International Conference on Computer, Control, and Robotics (ICCCR)

[PDF](#)

Projects

Outdoor Classroom – Historic Eleutherian College, Inc.

July 2021 – August 2021

- Sought out a Lilly Scholars Network Lead Forward Grant, searched for community needs by talking to high school teachers, proposed the project, and was awarded \$2500.
- Designed, built, and installed an outdoor classroom for 24 students to facilitate STEM training for minority student teachers.
- Over 155 man-hours in total.

Augmented Reality Tutorials – ETH Zürich

Spring 2022

- Built a Microsoft HoloLens app in Unity to allow a user to record AR tutorials that can be shared with other HoloLens users.
- Records the users hands for interactive playback and features a LiDAR object scan to add user-defined objects to the tutorial.

Natural Language File Searcher – CS592 Human-AI Interaction tool study

August 2021 – December 2021

- Integrated Stanford SEMPRES semantic parsing to determine file metadata from a natural language query.
- Developed a mixed-initiative interface application utilizing mdfind (Spotlight search) to perform an indexed search once the user's query has been parsed.

SkillZone – Minigame published on the Apple App Store

July 2021 – August 2021

- Built components of a minigame app with over 135,000 users.
- Developed using Xcode, Swift, and SwiftUI with a Firebase backend

Biodegradable Soy Polymer Business Plan (Firestarter Training)

July 2019 – August 2019

- Developed a business plan for a custom soy polymer to create single-use biodegradable foodware that reduces plastic waste for Purdue Dining.
- Took Firestarter Startup Training at the Purdue Foundry to gain skills to design and market startup ideas.

Community Engagement

President – Purdue Honors College App Development Committee

August 2018 – June 2022

- Guided teams to develop and maintain a client-server app to over 900 students and faculty to encourage community involvement by incentivizing academic achievements, event attendance, and volunteer work.
- Grew development team from 4 members to 20 members and guided 34 app update releases.
- Developed Firebase API endpoint, creating a single request framework for iOS, Android, and web apps.
- Personally built and integrated in-app messaging and a laundry machine status based on user feedback.

President – Lilly Scholars Network Purdue

August 2018 – January 2022

- Led volunteering events in the community and statewide with Lilly Scholars from Indiana.
- Held monthly professional events to connect members and foster a scholar community at Purdue.

Marketing & Design Executive – Purdue Association of IT Professionals

September 2018 – May 2019

- Created over 30 designs for shirts, flyers, and graphics to promote club spirit and outreach.
- Mentored members to foster professional development.
- Worked 7+ hrs/week to plan events and create materials to benefit the club's impact and future.

Eagle Scout – Boy Scouts of America

June 2012 – June 2019

- 200 man-hour landscaping project for the North Madison Church of Christ in Madison, IN.
- Raised funds, drafted and revised plans, selected plants, and organized labor to accomplish the project.