

Arman Bhalla

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EDUCATION

The University of Chicago

Bachelor of Science in Computer Science

Graduated one year ahead of schedule, completing the entire degree programme in 3 years.

Chicago, IL

Sep. 2021 – June 2024

EXPERIENCE

Google

Software Engineering Intern

Mountain View, CA

June 2023 – September 2023

- Developed & deployed new tool for Google's Adversarial Code Detection with AI (ArC-AI) team
- Utilised C++, BigTable, Spanner, Stubby, Scaffolding, Dremel, Capacitor, Angular & TypeScript
- Reduced testing waiting time by 92%, improved antivirus rule creation efficiency by 2x
- Saved 30+ hours per rule on 6-7k rules per year by directly testing rules without using Flume jobs
- Addressed 3 long-standing, high-priority customer bugs outside of the initial intern project scope
- Applied knowledge from scalable machine learning & cyber-security trainings to ship new features to production
- Utilised pprof and perf to help conduct performance optimisation to the internal BigTable SQL querying engine

University of Oxford Department of Computer Science

Oxford, UK

Research Intern

May 2019 – September 2021

- Led novel biometrics research for Augmented Reality headsets using head movement data for continuous identification & authentication
- Utilised C++, Python, and R for data analysis and modeling
- Achieved 94.82% accuracy with real user study data
- Reached out to PI, led team of 2 PhDs & published as primary-author to ACM conference

Massachusetts Institute of Technology Media Lab

Cambridge, MA

Research Intern

February 2020 – May 2020

- Built privacy-sensitive model for predicting Covid community spread from IoT device data
- Utilised C++, PyMC3-based Bayesian statistical learning, factor graph models
- Used in MIT's pandemic return-to-campus strategy, impacting 28,000+ community members

Ori Industries

London, UK

Software Engineering Intern

August 2019 – September 2019

- Developed production orchestration tools for deploying cloud-native apps to edge-computing infrastructure in Go and C++
- Utilised gRPC & Protocol Buffers, Docker, Kubernetes, Hadoop, and GNU/Linux

British Broadcasting Corporation

London, UK

Data & Software Engineering Intern

August 2018 – September 2018

- Built prototype content recommendation engine for voice-enabled BBC Sounds app in Objective-C
- Completed DataLab Machine Learning training using Python & Tensorflow

PUBLICATIONS

A Bhalla et al. (2021). "MoveAR: Continuous Biometric Authentication for Augmented Reality Headsets." ACM AsiaCCS.

A Bhalla et al. (2020). "Prediction of Coronavirus Emergence Due to Local Activity." MIT Media Lab.

SELECTED PROJECTS

Screenwhisper

2024

- Built a screen-reader plugin which uses the advancements in GPT-based LLMs to create a better, more accessible computing experience for blind & disabled users.
- Utilises purpose-built C++ web-socket server, JavaScript-based browser extensions, and Python.

Real-time Undetectable Process Memory Inspector

2023

- Developed a real-time memory access monitor for running processes on a computer, using Direct Memory Access (DMA) with Mellanox Infiniband PCIe card in order to circumvent memory access & monitoring protections
- Implemented C++ based processing system running on a network micro-controller connected to the chip, which extracts memory chunks of interest, and relays valuable information extracted from those memory chunks

More projects, including various published iOS apps & games: <https://bhalla.tech>

AWARDS & HONOURS

Platinum Medal (highest), USA Computing Olympiad (USACO)

Speaker of Evidence, House of Lords, Parliament of the United Kingdom

Speaker and Panelist, CogX International Festival of AI