Kush Bhagat

Computer Science at University of Waterloo

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Education

University of Waterloo | Bachelor of Computer Science — 2018 - 2023

- **3.9/4.0 GPA** (90.8% Cumulative GPA); Term Dean's Honours List
- **Notable Achievements:** President's Gold Scholarship ($20,000), Semi-finalist in New Venture Case Competition, Semi-finalist in Starbucks Case Competition

Experience

Huawei | Software Engineer — May 2021 – Aug 2021

- Improved runtime of Fortran target regions by **96%**, by developing **GPU** offloading capabilities in **C++**
- Enhanced **Flang's** (Fortran compiler) multi-threading and concurrent capabilities by developing support for **OpenMP** combined and nested parallel constructs
- Refactored **10,000+** compile-time errors during **Flang** upgrade to **LLVM** 12, automated testing using **Jenkins**

Software For Love | Software Developer — May 2021 – Aug 2021

- Planned, designed, and developed **full-stack** web applications in **Angular** and **Node.js** for two business clients by mapping software solutions to meet their business goals, resulting in **$5,000+** raised in charitable donations
- Engineered a housing rental marketplace with **Stripe** payment system and developed authentication flows to support Google and Facebook login using **OAuth 2.0** protocols

Equitable Life of Canada | Web Developer — Sept 2020 – Dec 2020

- Reduced load to backend server by **30%**, by creating a client-side caching service to intercept high-usage data
- Decreased average time spent on project deployment by **1 hour**, with the development of an **ASP.NET Core** web app that automatically notifies project stakeholders of deployment approval

Rocscience | Software Developer — Jan 2020 – Apr 2020

- **Doubled** user usage of CAD themes by creating a theme manager in **WPF .NET** that gives users the ability to modify the central user interface as well as **3D** models, maps, and environments
- Created a tool in **C#** that automates retrieval of app documents, saving **2-3 minutes** every search

Projects

PicHouse | Angular, Node.js, MongoDB, Heroku — /PicHouse

- A web application that allows users to view, upload, and share images privately or publicly
- Built an **API** that uses JSON web tokens to securely authenticate the uploading and deletion of images

Connect 4 AI | JavaScript — /Connect4Web

- Created a search tree using a depth-limited minimax algorithm to parse through **16,800+** moves every turn
- Optimized search by **40%**, by using transposition tables and alpha-beta pruning

WLP4 Compiler | C++, MIPS — /WLP4Compiler

- Implemented scanning, parsing, context-sensitive analysis, and code generation of WLP4 code (subset of C++)
- Ranked **3rd** amongst 300+ students in creating the most optimized code generating compiler

Skills

Languages: C++, Python, TypeScript, C#, C, SQL, LLVM IR, Java, JavaScript, Bash, MIPS, HTML/CSS
Technologies: Node.js, Angular, ASP.NET Core, Azure, Django, WPF .NET, TensorFlow, Unity, OpenCV, Git