

# AKASH BHATTHAL

Contact ✉ [akashbhatthal@gmail.com](mailto:akashbhatthal@gmail.com) ☎ [\(510\) 255-5478](tel:(510)255-5478)

Portfolio 📁 <https://www.abhatthal.com>

LinkedIn 👤 <https://www.linkedin.com/in/abhatthal>

GitHub 🐙 <https://www.github.com/abhatthal>

## Who am I?

I am an Xoogle software engineer with 2 years of experience developing YouTube's Search infrastructure. As a backend C++ engineer, I have experience building upon, testing, and debugging large codebases and deploying reliable solutions at scale. I am a Canadian citizen and US permanent resident currently looking for work in the United States and Canada.

## Experience

**Software Engineer, Google**

**May 2, 2022 – April 22, 2024**

- Built upon YouTube Search infrastructure to more efficiently serve queries with reduced cost and latency
- Contributed over 20,000 lines of C++ code including optimizations and migrations
- Reduced Search latency by 3 milliseconds without any search quality impact by cutting ThinSearch document retrieval size by 30%
- Embedded precompiled machine learning models for Search wholepage ranking for improved performance over dynamic models
- Moved Ads RPC call to leverage partial search response for more relevant ads

**Software Engineering TA, Code Platoon**

**Feb 1, 2021 – May 31, 2021**

- Taught data structures, algorithms, and fundamentals of computer science to a class of 30 military veterans.
- Assisted students with programming assignments and web development projects
- Built web applications using modern frameworks including Django and React

## Projects

**Parabix on ARM**

<https://abhatthal.github.io/parabix-arm>

- Provided support for Parabix, a high-performance programming framework, to leverage SIMD and multicore parallel processing features on Apple Silicon
- Translated 9 x86 operations into equivalent ARM using LLVM IR
- Contributed over 200 of lines of C++ code over a 3-month semester

**Kraken**

<https://github.com/abhatthal/kraken>

- Built and maintained a Python Discord bot for user-management, moderation, and logging of over 300 users over 3 years

## The Giving Tree

<https://www.github.com/abhatthal/the-giving-tree>

- Designed and developed a simple clicker game with C# in the Unity game engine
- Led a team of 4 developers over a 3-month semester using Agile methodology

## Sony AVCHD Extraction

<https://github.com/abhatthal/video-tools>








- Wrote a collection of 6 Python and Bash scripts to extract and merge video clips from Sony AVCHD camcorders
- Leveraged FFmpeg to batch convert MTS files to MP4 videos while retaining metadata
- Examined EXIF metadata to merge burst videos by date and time

## Website Portfolio

<https://github.com/abhatthal/portfolio>

- Published a responsive website summarizing my experiences and projects
- Utilized Content Delivery networks for Bootstrap Icons, JQuery, and Zenscroll
- Embedded dynamic content with the Google Maps Embed API
- Built from scratch using HTML, CSS, and JavaScript without the use of website templates or web frameworks like Angular or React

## Skills

 <b>Web Dev</b>	React, Django, Flask, Spring Boot, ThymeLeaf
 <b>Data Science</b>	NumPy, Pandas, Spark
 <b>Compilers</b>	LLVM IR, Parabix, Neon
 <b>Game Dev</b>	Unity, Unreal Engine
 <b>Databases</b>	PostgreSQL, MySQL, Django ORM
 <b>Containers</b>	Docker, Docker Compose
 <b>Graphics</b>	OpenGL (GLUT in C++)

## Programming Languages

C/C++, Python, JavaScript, Bash, Java, Haskell, C#, MATLAB, R, Go, Rust

## Education

### Simon Fraser University

*Bachelor of Science, Computer Science*

2017 – 2022