

Akshar Barot

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EDUCATION

University of Waterloo

Bachelor of Software Engineering, Honors

- **3.95** cumulative GPA

Waterloo, ON

2023 - Present

SKILLS

Languages: JavaScript, TypeScript, Python, C, C++, Java, HTML/CSS, Git, Bash, Powershell, Markdown

Libraries/Frameworks: React.js, Next.js, Gatsby, Three.js, Tailwind CSS, Bootstrap, Photoshop, Illustrator, Node.js, Express.js, Flask, MongoDB, Firebase, OpenCV, Mediapipe, Jupyter Notebook

Concepts: OOP, Web Development, Data Structures, Algorithms, UI/UX Design, UNIX, FPGA, Digital Circuits

EXPERIENCE

Project Manager & Lead Developer | *React.js, MongoDB, Tailwind, HTML/CSS*

Nov. 2022 – Jan. 2023

Ladue Computer Science Club

St. Louis, MO

- Developed an information hub with club updates, schedules, calendars, and resources for **over 1000 students**
- Aggregated data from **over 50** school clubs and teams into a **MongoDB** database
- Managed collaboration between developers and the student body for efficient data collection and website design

Programming Instructor | *Python, Jupyter Notebook*

Dec. 2021 – May 2022

Ladue Computer Science Club

St. Louis, MO

- Developed and co-authored a **12-module** beginner-friendly Python course using a series of **Jupyter Notebooks**
- Covered introductory concepts like variables, conditionals, loops, lists, libraries, and additional relevant topics
- Delivered instruction to **over 30** students, enabling them to apply Python and essential programming concepts
- Received **90%** positive feedback from students on satisfaction surveys

PROJECTS

Jarvis 🗨️ - Interactive 3D Hologram Environment | *Next.js, TypeScript, Python, Flask, OpenCV, Mediapipe, Three.js*

- Enabled manipulation of virtual objects in 3D space based on hand position and gesture using **Computer Vision**
- Implemented 3D tracking by mapping distances between hand landmarks along a linear regression
- Integrated gesture recognition for efficient object scaling, rotation, and translation using intuitive hand movements
- Enabled touch-free interaction with voice commands using the **Web Speech API** for convenience and accessibility

BASIC Web 🗨️ - BASIC Compiler for Web Dev (UofT Hacks '24 Winner) | *TypeScript, JavaScript, BASIC, HTML/CSS*

- Designed an imperative programming language while considering grammar sets and syntactical features
- Built a compiler in **TypeScript** using recursive parsing to construct an abstract syntax tree
- Interpreted code using a runtime library to bundle program to a single **HTML** file
- Developed static, interactive websites with **CSS** styling in an entirely custom language

Portfolio + Blog 🗨️ | *Next.js, TypeScript, JavaScript, Tailwind CSS, HTML/CSS*

- Implemented static site generation for **Markdown** blog posts resulting in **1.8x** faster loading times
- Designed a sleek, responsive UI using **Tailwind CSS** by considering breakpoints for cross-platform capability

Shopping List App | *JavaScript, Firebase, HTML/CSS*

- Incorporated efficient data management using **Firebase Realtime Database** for seamless updates and storage
- Deployed as a **Progressive Web App (PWA)** enabling accessibility across web, Android, and iOS platforms