Johnathan Mo

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Education

Columbia University **New York City, NY**

Bachelors of Engineering in Computer Science *Expected May 2027*

- **GPA:** 3.91/4.0 —**Selected Coursework:** Data Structures, Advanced Programming, Operating Systems, Databases, User Interface Design, Discrete Math, Linear Algebra
- **Activities:** Columbia Build Lab, CGUI Lab, Application Development Initiative, TASA E-board

Experience

Google **Sunnyvale, California**

Software Engineering Intern *May 2025 - Aug 2025*

- Implemented a native VM root filesystem for Google's global compute fleet using **C++** that increased read performance by 96.3% and write performance by 60.12% by removing the necessity for a host-to-guest passthrough filesystem.
- Independently designed the system and added repeatable benchmarks confirming read/write gains; implemented comprehensive **Unit Tests** and **Integration Tests** to ensure robust deployment of the VM filesystem solution.

Mayah Design **Hybrid in NYC, New York**

Software Engineering Intern *August 2024 - January 2025*

- Constructed product visualization features using **React.js**, **TailwindCSS**, and **Node.js** for a novel interior design recommendation web platform, improving visual efficacy by 50%.
- Collaborated with product managers, other developers, and the CEO to deploy code over **AWS** and **Docker**. Utilized **SQL** and **Spring Boot** to optimize the furniture database, leading to a 60% increase in recommendation accuracy.

National Institute of Biomedical Imaging and Bioengineering (NIBIB) **Bethesda, MD**

Software Engineering Summer Intern, IDEAS Lab *June 2024 - August 2024*

- Developed a medical augmented reality application, integrating **Unity**, **C#**, and **Photon Fusion** for multi-user interactions. Leveraged **OpenAI** and **Microsoft Azure Speech Cognition Services** for intelligent voice commands.
- Delivered presentation to the Scientific Director of the NIBIB and a team of 12 surgeons and residency students to demonstrate the potential for AR to transform surgical workflows, informing NIH's AR research roadmap.

Stanford Ophthalmic Informatics and Artificial Intelligence Group **Palo Alto, CA**

Research Intern *May 2023 - September 2023*

- Conceptualized and executed research leveraging **Google Cloud Platform**, **Hugging Face** Transformers, **NumPy**, **Pandas**, **PyTorch**, and **Gradio** to compare CNNs against visual large language models for glaucoma recognition.
- Harnessed **few-shot** and **chain-of-thought** prompting to improve VLLM performance by 30%.

Personal Projects

Semantic Search for LinkedIn (Click Here)

- Created Locked In, a full stack app that uses dynamic **SQL** generation and **vector embeddings** to enable 750+ users to search LinkedIn with natural language and automatically generate and send cold emails using the **Gmail API** and **LinkedIn API**. The product launch went viral on LinkedIn, X, and YouTube, garnering over 200,000 impressions.

Multiplayer Typeracing Game (Click Here)

- Launched PlayTypr.com, a real-time multiplayer typeracing game built using **Python**, **TypeScript**, **WebSockets**, **Express**, **Vite**, **Firebase Auth**, and deployed with **Railway**, reaching $\approx$ 1,000 users at peak.

Manu.AI

- Implemented image-based questions using **OpenAI API**, **Supabase**, **FastAPI**, and designed frontend using **Next.js** to create a B2B **Full Stack** service turning inconvenient traditional user manuals into interactive digital knowledgebase with chat and image query capabilities. Deployed with **Docker** and stored files with **Amazon S3.**

Technical Skills

Languages: C, C++, C#, Python, Java, HTML/CSS/JavaScript, SQL, TypeScript, Bash, Protobuf
Tools: Cursor, Visual Studio, Unity, VS Code, Xcode, Onlook, Figma, Adobe XD, Tmux, Docker, Postman, Vercel, Netlify
Technologies/Frameworks: Git, PyTorch, Next.js, React, OpenAI, Microsoft Azure, MRTK3, Photon, Redis, Heroku, TensorFlow, NumPy, Pandas, Google Cloud Platform, Linux/UNIX, gRPC, LangChain, CI/CD
Interests: Video Editing, Vlogging, Tech Products, Calisthenics, Hiking, Swimming, Saxophone, Videography, Anime