

Zachary Bakhchi

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EDUCATION

The Cooper Union for The Advancement of Science and Art

New York, NY

Bachelor of Engineering in Electrical Engineering, Half-Tuition Scholarship

Aug. 2023 – May 2027

Related Coursework: Digital Logic Design, Data Structures & Algorithms, Computer Architecture, Communication Networks, Operating Systems, Software Engineering, Signal Processing, Digital Signal Processing, Medical Imaging

EXPERIENCE

Ana's Cloud LLC

Manhasset, NY

Software and Systems Engineer

September 2023 – May 2026

- Leading development of a managed intrusion detection platform for real-time client network monitoring.
- Led the successful implementation of an AI chatbot, enhancing customer engagement for a major client.
- Resolved and escalated hundreds of client software and system support incidents across diverse environments.
- Participated in disaster recovery for a client following data breach.

Intern

December 2022 – August 2023

- Explored the potential of Microsoft Copilot and other large language models, proposing innovative client solutions.
- Maintained environments and created detailed network diagrams for a diverse client base.
- Executed data migration projects, transitioning legacy hard drives to Microsoft SharePoint and OneDrive.

PROJECTS

AI-Chatbot for The Conference Board | *Python, JavaScript, Azure*

June 2024 – April 2025

- Developed an AI-powered enterprise chatbot for The Conference Board using Azure OpenAI and retrieval-augmented generation (RAG) pipeline.
- Integrated Azure AI Search, Bing Search APIs, and automated email support workflows into the chatbot platform.
- Regularly discussed and presented proof of concept to CTO and other relevant stakeholders.

Video2ASCII | *Python, OpenCV, Image Processing*

December 2025

- Built a real-time ASCII video rendering engine in Python using OpenCV, converting webcam, video, and image inputs into configurable ASCII output.
- Implemented configurable rendering options for color modes, resolution scaling, and multiple input sources.

CooperLink | *Java, React, Azure*

May 2026

- Fullstack web app connecting Cooper Union students with alumni mentors and career opportunities.
- Built Spring Boot backend with PostgreSQL and React frontend with Firebase authentication.
- Containerized with Docker Compose and deployed on Azure.
- Collaborated with the Cooper Union Alumni Association to refine platform requirements and deployment goals.

MRI Compressed Sensing Reconstruction | *MATLAB, Image Processing*

May 2026

- Developed an MRI reconstruction pipeline using compressed sensing and wavelet-domain sparsity techniques.
- Implemented Fourier analysis, multilevel wavelet decompositions across different wavelet bases.
- Built an iterative gradient descent reconstruction algorithm with random undersampling to simulate MRI scans and evaluate reconstruction error.

SKILLS

Technical Areas: Full-Stack, AI/LLMs, Computer Networks, Signal & Image Processing

Languages: Python, Java, JavaScript/TypeScript, SQL, C/C++, MATLAB

Frameworks & DevOps: React, Node.js, Spring Boot, OpenCV, Docker, Git/GitHub, Azure, Firebase, PostgreSQL

Platforms: Linux, Windows

LEADERSHIP & ACTIVITIES

Leadership: President of Hillel

Organizations: IEEE