ALEJANDRO MAYAGOITIA

Chicago, Illinois | LinkedIn

EDUCATION

Yale University, New Haven, CT — Class of 2025
BS in Electrical Engineering and Computer Science — GPA 3.80

WORK EXPERIENCE

McDonnell Boehnen Hulbert & Berghoff LLP, *Technical Advisor*, Chicago, Illinois — July 2025 – Present

- Drafted and prosecuted over 25 U.S. and international patent applications in the fields of machine learning, artificial intelligence, computer vision, and circuit design
- Translated complex engineering documentation and lab results into clear, legal-technical language suitable for a generalist audience and USPTO examiners
- Analyzed patents and research cited in office action responses to develop office action response strategies for 30+ cases

University College Dublin, *Summer Researcher* — May 2024 – August 2024

- Working off published papers, designed a sky imaging system using a Raspberry Pi, camera, and a solar panel
- Researched literature and wrote reviews on developments in computer vision, artificial intelligence, and solar panel technology
- Wrote bash scripts and cron jobs to automate system functions

PROJECTS

Personal Lighting and Alarm Clock System

- Designed and built a personal lighting and alarm clock system using an ESP32, sensors, motors, and C/C++
- Optimized power consumption by implementing FreeRTOS task scheduling and low-power modes, significantly extending battery life by over 48 hours
- Developed a web UI (built with HTML, SCSS, and JavaScript) to control alarm wakeup times, using TCP/IP, SNTP, HTTP, and TLS in the process

CAFFEINE: Collaborative Affordable Framework for Experiments in Interactive Networked Electronics

- Engineered a mixed hardware/software framework for real-time low-latency sonification of sensor data from wearable embedded systems alongside a professor and team of peers (ESP32, C/C++, Python, SuperCollider)
- Developed functional audio synthesis demos using C/C++, Python, and Max/MSP
- Co-authored a technical paper detailing the system architecture, accepted for publication in the *Proceedings of the 2025 International Computer Music Conference (ICMC)*

Musical Chessboard

- Designed and built a "Musical Chessboard" system that detects game states in real-time to drive an algorithmic music composition engine built in Max/MSP
- Developed Arduino firmware to interface with a 64-node sensor matrix (photoresistor/LEDs), implementing serial communication to stream physical board data to a Python backend for analysis
- Fabricated a custom enclosure by laser-cutting wood and acrylic and soldering hundreds of circuit components

SKILLS

- *Skills:* C/C++, Python, ESP32, Arduino, Embedded Systems, FreeRTOS, Circuit Analysis, Public Speaking, Strong Written Communication and Time Management, Fluent Spanish, Basic French