SEBASTIAN MONZÓN

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I am a full-stack software engineer & technical lead at Cisco Meraki, pursuing graduate research opportunities in Al, ML, music technology, electrical engineering, and other related fields. Simultaneously, I have been collaborating on multi-disciplinary research studies using AI from the Dept. of Mechanical Engineering and Media Lab at MIT.

Research Interests

- Artificial Intelligence
- Music Technology
- Wearable Electronics
- n Robotics
- Human-Computer Interaction

Skills

- Coding & Data science
- o 3D Design & Fabrication
- PCB Design (KiCad)
- Sound Design & Music Production
- Leadership & Communication

Awards

- HackUMass IX Hackathon: Two runner-up awards for an app that mixes friends' Spotify queues.
- UMass Amherst Dean's Award
- Melvin Howard Merit Scholarship

Languages

- English (Native)
- Spanish (Proficient)

Relevant Activities

- Swim Team Captain
- Tau Kappa Epsilon Recruitment Chair
- o Robotics Club

Fducation

University of Massachusetts Amherst

Manning College of Information & Computer Sciences, Commonwealth Honors College (2019 to May 2023)

Graduated with Honors. CGPA of 3.7

- BS in Computer Science, Minor in Business
- CHC Thesis: "Towards Generative Adversarial Audio Synthesis via Latent Interpolation Between Desired Timbral Qualities"

Peer-reviewed Publications

- 2025 Shuvo, I., Monzon, S., Smith, G., Flores, R., Diaz-Marin, C., Gu, R., Nagle, S., Paradiso, J., Boriskin, V., & Boriskina, S. (2025). "An Al-Driven Acoustic Symphony: Optimized Hydrogel Dewatering Leveraging a Diffusion-model for Music Spectrogram Inpainting." (Completed and in submission process)
- 2025 Shuvo, I., Monzon, S., & Boriskina, S. (2025). "A wearable, waterproof device for long-range health monitoring and intelligent distress signalling in harsh environments" (In preparation)
- 2025 Monzon, S. (2025). "A critical review of wearables for extreme environments and machine learning models for health monitoring" (In preparation)

Presentations

- 2025 Shuvo, I., Monzon, S., Smith, G., Flores, R., Gu, R., Boriskin, V., & Boriskina, S. (2025). "The symphony of dewatering hydrogels: Al-Generated music for water extraction." Submitted at J-WAFS event, MIT (May, 2025, Cambridge, MA, USA).
- 2025 Monzon, S. (2025). "Music Generation with Stable Diffusion Inpainting." Presented at Multifunctional Metamaterials (META), April 2025, Massachusetts Institute of Technology (MIT)

Research Experience

Designing and building a wearable IoT sensor for swimming telemetrics and eventual AI data analysis. (2025 - present)

- Aggregated research of cutting-edge methods to overcome RF interference from water using LoRa.
- Modelling and fabricating hydrophobic housing to use while the sensor is transmitting data from the water.
- Developing a neural network model to interpret and classify sensor data.
- Designing circuitry to mesh an IMU, heartbeat sensor, MCU, and OLED in a compact, waterproof form.
- Performing field tests at the MIT swimming pool.

Mel-spectrogram diffusion model pipeline for the purpose of generating targeted audio to dewater a hydrogel via acoustics. (2025)

- Collaborated intensively with MIT researchers as an independent researcher.
- Investigated state-of-the-art methods for audio generation directed towards our research goal.
- Experimented with technologies including Google Magenta's WaveNet model.
- Developed a novel framework for generating tailored music with a new diffusion inpainting model.
- Compiled a list of other technologies to improve the framework in the future.
- Co-authored a research manuscript, which is in the process of being published.

Honors Thesis for the Commonwealth Honors College at UMass Amherst (2023)

- Researched existing methods of AI sound generation in collaboration with an advisor.
- Proposed an AI model to generate musical notes based on sound descriptors using a GAN model.
- Designed and built a classification network to categorize audio instrument types by their spectrograms.
- Wrote a 24 page manuscript.

Industry Experience

Software Engineer

Cisco Meraki (2023-present)

Architecting features, resolving complex issues, and collaborating in a team of professionals for a global networking dashboard cloud service.

- Working closely with a diverse range of UX designers, project managers, and sales to engineer cutting-edge scalable networking solutions, including a new dashboard page for power saving options.
- Resolved several time-sensitive million dollar issues for clients in Japan, Botswana, and others across the globe by interpreting and fixing large amounts of unfamiliar parts of code.
- Led software engineers in India and China to help with onboarding and coding questions.
- Designed a Large-Language Model (LLM) to pool company Slack and Confluence documents for easier access during a 1-week Cisco hackathon.

Chief Technology Officer

Beamshyft (2025-present)

Prioritized features, Designed the UX, and Developed a real-estate startup website and backend.

- Developed the website independently using Next JS. Hosted at <u>https://beamshyft.com</u>.
- Wrote a statement of work to outline my phases of work and accompanying features.
- Collaborated with the CEO and business partners to arrive at a prioritization schedule and product.

Software Engineer Intern

Cisco Meraki (2023)

Developed features and fixes for the Meraki Dashboard as an intern during my senior year of undergrad

- Redesigned the Access Points page to follow new Cisco Magnetic design principles.
- Solved other dashboard issues in a collaborative environment after completing my capstone project ahead of time.
- Learned Ruby, SQL, and perfected React JS abilities through work on the Meraki Dashboard for Wireless Access Points.

Website Developer

HouseCuts (2021-2022)

Developed the website of an at-home hair styling startup

- Designed and built the frontend (HTML, CSS, Javascript, jQuery), backend (MySQL), API (PHP), and admin panel for a Hair-styling startup's search and appointment booking system.
- Used Squarespace's Acuity API and PHP to locate nearby hairstylists, create and manage appointments, and store our stylists' information on an Apache server using MySQL