Jaeho Cho

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EDUCATION

The Cooper Union for the Advancement of Science and Art　　　　　　　　　New York City, NY
Bachelor of Engineering in Electrical Engineering, Bioengineering Minor　　　　　*Aug 2022 – May 2026*

- Half Tuition Scholarship | Myron Coe Scholarship | Full Tuition Scholarship 2025-2026
- Courses: Frequentist Machine Learning, Digital Signal Processing, Communication Theory, Computer Architecture, Integrated Circuit Engineering, Theoretical Neuroscience, Medical Imaging, Bio-Instrumentation & Sensing

WORK EXPERIENCE

Research Volunteer | Neuroscience　　　　　　　　　　　　　　　　　　　*June 2025 – Present*
NYU Langone Health • New York, NY

- Analyzing budgerigar recordings to extract acoustic features and cluster syllables.
- Developed a ROS2 system for automatic budgie tutoring and data collection, controlling a custom robotic bird optimized for tutoring.

Research Volunteer | Ergonomics in Otolaryngology, Computer Vision in Operating Room　　*Feb 2024 – Present*
Mount Sinai • New York, NY

- Developing multi-camera computer vision model to integrate endoscopic video and external OR views.
- Used Ultralytics YOLO to classify surgical instruments and phases in endoscopic sinus surgeries.
- Developed data-processing pipelines to interpret raw data from Xsens IMUs, analyzing the ergonomic stress on joints.

Data and AI Intern | Hanwha TotalEnergies Petrochemical　　　　　　　　　　*May 2024 – Aug 2024*
PwC • Seoul, South Korea

- Developed and optimized advanced time-series forecasting models utilizing GluonTS, Chronos, and Darts Python libraries to generate price predictions for flagship petrochemical products with a 3-month forecasting horizon.
- Refactored backend data pipelines in Django, transitioning from MongoDB to ClickHouse and improving performance.
- Built a Django service that automates article aggregation via private and public APIs, analytically integrating forecasts and market indicators to enhance LLM-driven sentiment analysis, ultimately delivering actionable insights to analysts.

Teacher Assistant | Design and Drawing　　　　　　　　　　　　　　　　*Jun 2023 – Aug 2023*
The Cooper Union • New York, NY

- Instructed 24 students in engineering design fundamentals, circuit design, Arduino programming, and Onshape CAD.
- Led workshops on Arduinos and circuit design, culminating in students building 3D-printed 4-DoF robotic arms.

EXTRACURRICULAR ACTIVITIES

Project Lead | Bioengineering Vertically Integrated Projects　　　　　　　　　*Sep 2022 – Present*
The Cooper Union • New York, NY

- Building open-source robotic arms for direct human-robot interaction, using Mediapipe and OpenCV Python libraries for pose landmark detection and ROS2 for the kinematic mapping of joint positions to the OpenMANIPULATOR-X system.
- Simulated real-time systems in Gazebo using MoveIt2 and ros2_control for collision detection and motion planning.
- Designed and fabricated a PCB in Altium for an eTextile sensor, presented at the 2024 ASTM International Exo Games.

Shadow | Dr. Steve Doh (Anesthesiologist)　　　　　　　　　　　　　　　*Jun 2023 – Jul 2023*
St. Joseph's Medical Center • Yonkers, NY

- Observed medical procedures, including endoscopies, laparoscopies, lithotripsies, orthopedic, and open surgeries.
- Gained insight into medical equipment, from ultrasound and anesthesia machines to robotic-arm assisted surgeries.

PROJECTS

Theoretical Neuroscience Modeling　　　　　　　　　　　　　　　　　*Jan 2025 – May 2025*

- Developed computational models, from neural encoding and decoding to the Hodgkin-Huxley model and cable theory.

SKILLS

- Programming: Python, MATLAB, Rust, C, C++, Verilog, VHDL, Git, Docker, JavaScript, SQL
- Software: Virtuoso, LTspice, Altium, Vivado, ROS2, Gazebo, Blender, Onshape, Fusion360, Inventor
- Certification: NYS EMT, CPR