GAUTHAM ANNE

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EDUCATION

BS Mechanical Engineering, MS Electrical Engineering, Northwestern University 2023-2027
Relevant Courses: Intro to Nonlinear Control, Intro to Nanophotonics, Mechanical Vibrations, Advanced Electrodynamics, Random Processes, Theory of Machines - Dynamics, Feedback Systems, Quantum Mechanics

High School Diploma, Illinois Mathematics and Science Academy 2020-2023
Robotics Team Captain — CEO of Epoch ML — Editor-in-Chief of Newspaper - 4x AIME Qualifier - Book Author — Student Researcher in High Energy Particle Physics at Fermilab — Junior Counselor at Ross Mathematics Program

SKILLS

Technical Solidworks, EAGLE, KiCad, Altium, MATLAB/Simulink, Microchip Studio, STMCubeIDE, SQL, Python, C/C++ Linux, 3D Printing, Precision Instrument Use (LDV, VNA), Tensorflow, Keras, scikit-learn, NumPy, pandas, JQuery, Flask, PyTorch

EXPERIENCE

SoCo (Social Companion) Sept 2024 - Present
Electrical Lead *Evanston, IL*

- Designing a candid photo-taking tool with automated framing using stepper actuation and onboard sensing

Northwestern Haptics Group (advised by Professors Colgate & Peshkin) Sept 2023 - Present
Undergraduate Researcher in Haptics Development *Evanston, IL*

- Conducted impulse response measurements of the human finger using exponential chirps with sine wave deconvolution, under varied boundary conditions, to inform haptic device design
- Characterizing lateral skin stretch across indentation depths and frequencies to guide future actuation strategies

MIT Quantum & Precision Measurements Group (advised by Professor Sudhir) Jun 2024 - Nov 2024
Visting Scholar, Electrical Network Theory Research *Cambridge, MA*

- Studying theory for optimizing circuit synthesis (multiport synthesis methods) by minimizing Nyquist noise
- Developed Mathematica & SPICE framework for calculating input referred thermal noise at nodes of any circuit

Omnid Research Group (advised by Professors Elwin & Lynch) Oct 2023 - Feb 2024
MARS Omnid Team *Evanston, IL*

- Prepared Omnid Mocobots (collaborative mobile manipulators consisting of omnidirectional mobile bases and series-elastic Delta-type parallel manipulators) for the 2024 Amazon MARS conference
- Replaced Tiva Launchpad on JC satellite boards, built PCB Shielding Boxes, and implementing Omnid E-Stop recovery system through STOs on motor controllers

Dave's Italian Kitchen Sept 2023 - Present
Hosting, Waiting, & Dishwashing *Evanston, IL*

PROJECTS

Low-Cost Scanning Tunneling Microscope (Ongoing) Designing a low-cost STM, from scratch, to image HOPG and other materials (gold, platinum sputtered films). I've built low noise regulated linear power supply, a tunneling amplifier (OPA928), and sheet metal housings. Working on mainboard (analog circuitry, digital feedback), unimorph disk scanner piezo driver, coarse approach mechanism, vibration isolation setup, and STM tip etching.

Other Projects Full fledged DC motor PID controller, Custom Webcam PCB, Jack-in-Box Lagrangian Mech Simulation, Low-cost EEG, Hybrid Plasmonic Waveguide Simulations. See my portfolio for more info.