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
Student Researcher in HEPG at Fermilab — Robotics Team Captain — 3x AIME Qualifier — CEO of Epoch ML — Editor-in-Chief of Newspaper — Author — Junior Counselor at Ross Mathematics Program — TKD Sparring Team

SKILLS

Technical Solidworks, EAGLE, KiCad, Altium, MATLAB/Simulink, Microchip Studio, STMCubeIDE, Python, C/C++, 3D Printing, Precision Instrument Use (LDV, VNA, Thermal Evaporator), 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), lock-in amplifier, unimorph disk scanner piezo driver, and more.

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.