Frank Dininno

Morgan Hill (San Jose), CA • (408) 966-0624 • fdininno@ucsd.edu • fydininno.github.io/ObsidianOnline/

University of California, San Diego — B.S. Nanoengineering (Expected Jun 2026)
GPA: 3.79/4.00

Technical Skills

Software: Python, Java, Bash, Linux, serial communication, open-source FEM & FDTD simulation tools (FEMWELL, MEEP), Lumerical, Pandas, NumPy, Biochemical tools (RFdiffusion, Addgene, ChimeraX), CAD software (Blender, Autodesk Inventor, Onshape, Klayout, OpenSCAD, Gmsh).
Cleanroom: Nano3 certified and trained.
Metrology: Ellipsometer, SEM, AFM, optical microscopy, stylus profiler, thin-film stress monitor.
Deposition: PECVD. **Etching:** RIE, SLR (plasma etchers). **Photolithography:** MLA (Heidelberg).
Shop: Milling machine, resin 3D printing, FDM 3D printing, general machining and fabrication, laser alignment.

Projects

Laser Annealing of Silicon-Rich Nitride for Waveguide Creation — *Primary Researcher.* Simulating and experimentally studying refractive index modification in Si-rich nitride thin films. Uses MEEP for beam propagation and power absorption, an FDTD thermal simulator for heat distribution, Pandas/NumPy for data fitting, and FEMWELL for mode calculations. Physical setup includes ESP300-controlled stages and a 529 nm high-power laser.

Node Form (Blender Add-on) — *Sole Developer.* Software extension for Blender enabling mathematical animation generation through node-based procedural design. https://github.com/FyDininno/NodeForm

Blender Finite Element Mesh Generator/Exporter — *Sole Developer.* Creates finite element meshes directly within Blender and exports to simulation-ready formats.

Graphene Compression Research (Senior Project) — *Researcher.* Designed and manufactured a two-tonne compression device in the UCSD metal shop to study graphene composites for thermal interface materials; achieved improved thermal conductivity in compressed structures.

Eagle Project — *Designer & Builder.* Constructed a mobile caged garden bed system (included documentation in website); managed design, materials, and build process.

Classes Taken

Electromagnetic Optics; Optical Information Processing & Holography; Laser Electronics; Waves, Thermodynamics, Optics (PHYS 2C); Relativity & Quantum Physics (PHYS 2D); Electronic Devices & Circuits; Materials Science; Thermodynamics of Materials; Micro/Nanofabrication; Nano Systems Characterization; Polymeric Materials; Photolithography & Microfabrication; Density Functional Theory; Heat Transport; Physical Chemistry; Solid State Physics; Biochemical Principles; Crystallography; Organic Chemistry; MATLAB for Engineers; Nanoscale Characterization; Nanomaterials Synthesis Lab; General Chemistry Lab; Differential Equations; Nuclear Physics Principles; Honors Calculus (31AH/BH/CH); Abstract Algebra.

Honors & Leadership

Achieved the rank of **Eagle Scout** (Nov 2021, Troop 730). Listed contributor of ***Geometric Algebra for Electrical Engineers*** by Peter Joot (https://peeterjoot.com/archives/math2025/GAelectrodynamics.color.V0.3.6.4.pdf). FIRST **Robotics CAD Lead** – 3256 Warriorborgs (2021 World's Advancement). *Vice President, Tritonthenix Calisthenics Club* — UC San Diego.