

NICHOLAS C. GRUMMON

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EDUCATION

Vanderbilt University, B.E. Cum Laude

May 2024

- Major in Mechanical Engineering, Minor in Computer Engineering | GPA 3.9/4.0

CERTIFICATIONS & SKILLS

Certifications: *Engineer in Training*, Commonwealth of Virginia | *Project Management*, Google

Software: ANSYS (Workbench, APDL, Fluent) | SolidWorks | CATIA | LS-DYNA | Linux / bash | GitHub / GitLab

Languages: Python (pandas, numpy, matplotlib) | VBA (Excel, SolidWorks) | C++ | LaTeX

ENGINEERING EXPERIENCE

Framatome Inc., Mechanical Engineer - Fracture Mechanics

July 2024 - Present

- Performed fatigue analyses using Ansys APDL, to qualify nuclear reactor components according to ASME.BPVC.III criteria.
- Performed flaw growth da/dt and SIF evaluations using APDL and VBA macros, according to ASME.BPVC.XI Appx C criteria.
- Acted as Preparer on 10+ technical calculations, fulfilling contracts with 5+ utilities and the industry-level PWR owner's group.
- Won CORE Award (company wide recognition) for novel implementation of probabilistic Monte Carlo (Weibull) simulation in Python, predicting PWSCC time-to-failure in LCBB replacements and delivering critical-pathway product for customer outage.

Nissan Motor Corporation, Process Engineering Co-Op - Casting and Forging

Jan 2023 - Aug 2023

- Used process data to tune aluminum injection parameters for 6-cylinder engine blocks on a High Pressure Die Caster (HPDC), warming up the machine without steel liners/inserts. Reduced scrapped steel by 60%+, showing potential savings of \$125k/yr.
- Led traceability initiative to contract the installation of a barcode laser-engraver for billets/crankshafts immediately after forging.
- Scripted a Python tool to compile years of HPDC vacuum data stored in an SQL database. Used data to characterize faults.

Vanderbilt Laser Diagnostics of Combustion Laboratory, Undergraduate Research Assistant

Jan 2022 - Dec 2022

- Performed thermodynamics hand calcs to spec a piping in-line heater capable of initiating cool flames at 500 K in dimethyl-ether.
- Installed and calibrated flow meters, valves, and piping to feed gas-fuel mixtures into a tubular burner for flame study.
- Investigated scientific papers covering the phenomenon of cool flames, with applications in diesel and alternative-fuel efficiency.

PROJECT EXPERIENCE

Vanderbilt Capstone Project, Automated Speaker Installation

Aug 2023 - Apr 2024

- Led a 5 person team to automate the installation of speakers into Nissan Pathfinder vehicle doors, using a UR10e cobot.
- Delivered a machined aluminum end-effector, featuring parallel spring-action nut drivers and a CAM-actuated gripper.
- Used Ansys Workbench to minimize gripper frame while supporting weight of electrical hardware and speaker payload.
- Met or exceeded all design specifications including cycle time (<40 seconds), weight (<10 lbs), and ROI (projected 400%+).

Engineering Portfolio, <https://nicholasgrummon.portfolio.com>

August 2021 - present

- Exhibits sample FEA meshes and studies, characteristic of fatigue and crack-growth modeling performed for Framatome Inc.
- Showcases fabrication skills including machining (lathe + end mill), welding, 3D-printing, lasercutting, and more.
- Notable design projects: parametric Solidworks template, self-moving chess-board, eight-bit cpu.

VOLUNTEER & LEADERSHIP EXPERIENCE

"Vector Space" Community Makerspace, Mentor

May 2025 - present

- Logged 15+ volunteer hours supporting community DIY events and mentoring FIRST Robotics Team 10257, specializing in teaching CAD design principles and fabrication skills, and sharing experience as a 2018 FRC-Worlds Competitor.
- Constructed a 16-foot tall "Baba Yaga" (house on chicken legs) art installation with a team of six. Led the structural design of removable legs with a locking mechanism for portability. Showcased the piece at a local fall festival for 500+ attendees.

Habitat for Humanity, Construction Volunteer

Apr 2025 - present

- Logged 60+ volunteer hours building framing, installing siding, and laying roofing on 4 Habitat homes in the local area.
- Supported additional Habitat initiatives including the "ReStore" thrift warehouse and "Blitz Build" house-in-a-day events.

Wyzant Tutoring Services, Tutor - ACT, SAT, & PSAT

Feb 2025 - present

- Coached 15+ students on practical exam strategies, sharing approach as a top 1% ACT / SAT scorer and NM Finalist.
- Achieved a 5.0/5.0 rating, designing individualized lessons and homework that consistently drove student score gains.

Vanderbilt Chess Club, President

Aug 2020 - May 2024

- Led weekly meetings and monthly club tournaments, and maintained equipment for a community of 200+ chess players.
- Organized Vanderbilt's first-ever team for the Pan-Ams Intercollegiate Championship in Seattle. Placed 4th in U1800 section.

DISTINCTIONS & ASSOCIATIONS

Distinctions: Franklin High School, *Valedictorian* | BSA Troop 130, *Eagle Scout* | Chess.com, 2000 Rapid (Top 0.3%)

Associations: Virginia DPOR, *EIT* | Tau Beta Pi, *Member* | ASME, *Member* | NAYGN, *Member*