

# Marcel Dabek

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## EDUCATION

University of Connecticut, Storrs CT - Mechanical Engineering – 3.8GPA	Aug 2023 – May 2027
Relevant coursework: Heat Transfer, Thermodynamics I & II, Fluid Dynamics, Material Science, Mechanics & Dynamics	

## PROFESSIONAL EXPERIENCE

Engineering Intern - <i>Infiltrator water Technologies, Old Saybrook</i>	May 2025 – Aug 2025
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- Led ops-automation effort to bring ~400,000 caps/year production in-house, improving margins by ~\$50K/year
- Rapidly iterated through 26 designs using additive manufacturing and a DFM–FEA loop, de-risking tooling
- Designed and released multiple injection-molded components (DFM) improving assembly safety & efficiency
- Developed a low-cost modification package for a high-level alarm & conducted FEA validation testing on products
- Set up, tested and installed leading edge R&D projects & created 50+ drawings enabling supplier negotiations

Tile Technician - <i>DBK LLC, Ceramic Tile and Floor Preparation Professional</i>	May 2024 – Aug 2024
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- Completed 10+ tiling and floor leveling projects around New England working ~50hr a week.
- Conducted digital quantity takeoffs in Bluebeam Revu and built cost estimates (materials + labor) for various sites
- Learned project planning, management, and cost reduction strategies

Lifeguard, Swim Instructor – <i>Berlin Parks and Recreation, Berlin CT</i>	Jun 2021 – Sept 2023
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## ENGINEERING EXPERIENCE

EV Powertrain Lead – <i>UConn Formula Society of Automotive Engineers</i>	May 2024 - Present
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- Led the first electric vehicle to a 14th-place national finish, owning the powertrain, accumulator, and electrical boxes
- Architected a 440-cell, 462V, 8.32 kWh accumulator that met FSAE rules without active cooling
- Led the design and manufacturing of the EV powertrain using ANSYS for structural/topology optimization
- Analyzed powertrain using Ansys modal to shift modes of the structure above the motor's operating range
- Developed a MATLAB simulation to determine optimal gear ratio
- Manufactured sealed LV/HV enclosures to house critical electrical components with plasma cutter programming.
- Designed motor/differential mounts, and a powertrain plate, using ANSYS Static Structural and applied Topology Optimization to cut mass by 30%.

EV Powertrain Engineer – <i>UConn Formula Society of Automotive Engineers</i>	Aug 2023 – May 2024
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- Reverse engineered a Yamaha R6 output shaft
- Manufactured and assembled the EV powertrain using a mill, plasma cutter, and hydraulic press.
- Identified suitable bearings for the powertrain through free body diagram force calculations.
- Coordinated with suppliers to purchase stock aluminum 6061-T6, negotiating costs to stay within budget constraints.
- Built a project-management web app that syncs with discord for SSO and roster sync, mapping all projects on a timeline for critical path tracking.

Private Pilot	June 2021 – Present
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- Complete pre-flight inspections on flight controls, electrical systems, and maintenance on a Piper Warrior III.
- Demonstrated strong problem-solving skills by addressing mock scenarios of mechanical anomalies during training.

## SKILLS

**CAD Software:** SolidWorks, Creo, Autodesk Fusion

**Engineering Software:** ANSYS, Simulink, MITCalc , RMS GUI, Microsoft Products, Altium, VS Code

**Programming Languages:** Typescript, CSS, Java, Python, MATLAB

**Languages:** English (fluent), Polish (fluent)

**Tools:** Calipers, 3D Printers, CNC Mill, Plasma Cutter, Welder, Lathe, Spot Welder, Soldering, Bandsaw, Drill Press