Marcel Dabek

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EDUCATION

University of Connecticut, Storrs CT Aug 2023 – May 2027

Bachelor of Science, Mechanical Engineering | GPA: 3.75 | Coursework: Thermodynamics, Fluids, Dynamics, Materials Science

PROFESSIONAL EXPERIENCE

Engineering Intern - *Infiltrator Water Technologies, Old Saybrook, CT* May 2025 – Aug 2025

- Led ops–automation to bring ~400,000 caps/year production in-house, improving margins by ~$50K/year
- Evaluated robots + packaging redesign projecting 50–75% fewer manual interactions/shift
- Autonomously iterated through 26 designs using additive manufacturing and a Design-FEA-Test loop, de-risking tooling
- Rapidly learned DFM for injection-molding and released 3 components; added a clip feature that eliminated install time
- Developed a low-cost modification package for a high-level alarm by integrating a float valve into existing infrastructure
- Set up, tested and installed leading edge R&D projects; created 50+ drawings enabling supplier negotiations
- Drafted 8020 + vacuum-cup end-of-arm tooling for cap handling

Tile Technician - *DBK LLC, Ceramic Tile and Floor Preparation* May 2024 – Aug 2024

- Conducted digital quantity takeoffs in Bluebeam Revu and built cost estimates (materials + labor) for multiple sites

Lifeguard, Swim Instructor – *Berlin Parks and Recreation, Berlin, CT* Jun 2021 – Sept 2023

ENGINEERING EXPERIENCE

EV Powertrain Lead – *UConn Formula SAE* May 2024 – Present

- Led the first electric vehicle to a 14th-place national finish, owning the powertrain, accumulator, and electrical boxes
- Architected a 440-cell, 462 V, 8.32 kWh accumulator that passed technical inspection in its first year
- Collected data to simulate multiple battery pack designs optimizing for the highest points finish at the FSAE competition
- Led the design and manufacturing of the EV powertrain using Ansys for structural/topology optimization
- Designed water-proof electronics enclosures to house critical components; manufactured with plasma cutter programming
- Analyzed telemetry and tuned motor controller settings to fix drivability issues and reduce power cutbacks with Race Studio 3
- Coded a project-management web app with discord syncing, single-sign-on (SSO), and a timeline for critical path tracking

EV Powertrain Engineer – *UConn Formula Society of Automotive Engineers* Aug 2023 – May 2024

- Reverse engineered a Yamaha R6 output shaft & developed a MATLAB simulation to determine optimal gear ratio
- Manufactured and assembled the EV powertrain in only a week using a mill, plasma cutter, and hydraulic press
- Analyzed powertrain using Ansys modal to shift modes of the structure above the motor's operating range
- Identified suitable bearings for the powertrain through free body diagram force calculations
- Designed motor/differential mounts, and interfacing structure, using Ansys static Structural/Topology
- Redesigned the pedal mounting for 2-axis machining using Fusion 360 generative design cutting weight by 43%

Private Pilot June 2021 – Present

- Complete pre-flight inspections on flight controls and electrical systems on a Piper Warrior III
- Executed abnormal/emergency POH procedures during simulated engine failures and restarts

Inline Volumetric Hose Controller July 2025 – August 2025

- Developing a handheld device that uses a flow meter, latching solenoid valve, ESP32, and a seven-segment display all on a custom PCB to control & select the amount of water being distributed at the end of a garden hose

SKILLS

CAD Software: SolidWorks, Creo, Fusion 360
Engineering Software: Ansys, Simulink, MITCalc , RMS GUI, Microsoft Office, Altium, VS Code, Race Studio 3
Programming Languages: Python, MATLAB
Languages: English (fluent), Polish (fluent)

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