

Berkay Ataçoğlu

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EXPERIENCE

Design Engineer

Apr 2026 - Present

Freelance

Istanbul, Türkiye

- Currently designing a 3+2 axis custom CNC machine targeting ± 0.01 mm positional accuracy for precision gem faceting.
- Optimizing strength-to-weight ratios via analytical calculations and iterative material selection.
- Conducting FEA and motion studies on all structural and kinematic components for design validation.
- Reducing cost and lead time by designing around off-the-shelf components with targeted modifications, avoiding lengthy custom-manufacturing lead times.

Maintenance Engineer

Aug 2025 – Jan 2026

NephroCan Medical

Istanbul, Türkiye

- Conducted floor acceleration measurements, processed the data using FFT to identify the dominant ground vibration frequency, and designed a four-corner mechanical spring isolation system with a target natural frequency set below one-third of the excitation frequency ensuring effective vibration attenuation.
- Analyzed surface finish defects on dialyzer caps caused by shear during hydraulic vertical cutting. Designed a replacement workholding sub-assembly featuring a face-clamping mechanism to stabilize the workpiece during the cut, aimed at improving surface quality and eliminating the need for post-process manual trimming. Design was approved by the Head of Engineering.
- Mapped station cycle times across the production line, identified bottlenecks using time studies, and monitored PLC logic and HMI displays to pinpoint equipment faults and support root-cause troubleshooting.
- Performed full machine assembly/disassembly, pneumatic system fault-finding, and documented detailed work orders in the Mikro ERP system, including fault descriptions, tasks performed, and parts used.

Engineering Intern

Jul 2024 – Aug 2024

NephroCan Medical

Istanbul, Türkiye

- Developed standardized operational process flowcharts for reverse osmosis (RO) water purification system assemblies to streamline production workflows.
- Operated conventional milling machines to fabricate custom prototype components from technical drawings.
- Supported quality control testing and performed mechanical assembly/disassembly of dialysis machines.

EDUCATION

Marmara University

Graduated Jul 2026

Bachelor of Science in Mechanical Engineering (English)

Istanbul, Türkiye

PROJECTS

Expert System Based AI Software on Vibration Based Machinery Fault Diagnoses

- Developed an algorithm for weighing in user input to estimate the fault modes based on linear algebra concepts using Python (NumPy).
- Used JavaScript (SvelteKit) to build the UI and Python (FastAPI) to fetch the results to my personal website.
- Prepared an extensive report as my graduation project.

Ball Balancing Table

- Derived the equations of motion (Newton-Euler) for the ball-on-beam system, used the mathematical model to design and tune a PID controller on Python, and deployed it on a Raspberry Pi 5 for real-time control.
- Used two small RC servo motors for actuation signaled by Arduino Nano.
- Tracked the ball using a high-speed camera with Python (OpenCV).
- Modeled and rendered the system using Solid Edge.

You can check out more of my projects on my website: batacoglu.com/projects

TECHNICAL SKILLS

Languages:  Turkish: Native |   English: Fluent |  German: A2 Level

CAD & CAE: Siemens NX & Solid Edge, SolidWorks, Onshape, Ansys, Lotus Engine

Programming & Data: Python (NumPy, OpenCV, Matplotlib, SciPy), Matlab, Simulink

Complementary: LaTeX, JavaScript (SvelteKit), DaVinci Resolve