

KAAN BOREKCI

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EDUCATION

Northwestern University

Evanston, IL

Master of Science in *Mechanical Engineering*

Expected Jun 2026

- GPA: 4.0/4.0

Bachelor of Science in *Biomedical Engineering*

Jun 2025

- Major GPA: 3.7/4.0 | GPA: 3.5/4.0 | **Dean's List (2024)**
- **Coursework:** Mechatronics, Embedded System Design, Biomedical Machine Learning, Heat & Mass Transport

WORK EXPERIENCE

Shirley Ryan Ability Lab – Center for Bionic Medicine, Arun Jayaraman Lab

Chicago, IL

Biomedical Machine Learning Intern

May 2024 – Present

- Developed pipeline to evaluate 3D pose lifters on retrospective, uncalibrated, “in-the-wild” infant video datasets
- Generated pseudo-ground truth using depth-informed 3D reconstruction via the Inverse Pinhole Projection Model
- Developed literature-backed evaluation framework that introduces anatomical constraints for model validation
- Implemented evaluation across 8+ lifter models using MMPose on CUDA-enabled Linux system

International Institute for Nanotechnology, Chad Mirkin Lab

Evanston, IL

Nanotechnology Intern

Jun 2023 – Jul 2023

- Optimized crystallization of DNA-coated colloidal nanoparticles, reducing formation time by >48 hours
- Developed ImageJ workflow to quantify crystallization kinetics from pixel intensity changes

Innovation and New Ventures Office at Northwestern

Evanston, IL

Technology Transfer Intern

Jul 2022 – Aug 2022

- Built and maintained database, tracking \$2.75B raised across 180+ startups for tech-transfer strategy development

Querrey Simpson Institute for Bioelectronics, John Rogers Lab

Evanston, IL

Bioelectronics Research Intern

May 2020 – Sep 2020; Jul 2019 – Aug 2019

- Evaluated embedded sensor systems for post-graft skin flap monitoring and hydrocephalus shunt flow detection
- Characterized device drift and validated phantom model experiments simulating physiological flow conditions
- Coauthored peer-reviewed paper in [Nature Digital Medicine](#)

PROJECT EXPERIENCE

Diaphragm Control for Pediatric Congenital Central Hypoventilation Syndrome

Evanston, IL

Capstone + Independent Project, Patent Pending

Sep 2024 – Present

- Selected to present at BMES Annual Meeting 2025 (San Diego) with patent application and publication in progress
- Developed first-step device platform toward a closed-loop biofeedback model for diaphragm pacer regulation
- Programmed firmware in embedded C to interface IMU (I²C) and CO₂ sensors (UART) & manage SD logging (SPI)
- Designed custom PCB that reduces power consumption by 20+ hours
- Improved user-experience and addressed failure modes by adding hardware & software diagnostic features

Clinical Analysis of Mevacor-Lovastatin

Evanston, IL

Class Project for Pharmaceutical Engineering: From Discovery to Therapeutics

Jan 2023 – March 2023

- Analyzed Mevacor (Lovastatin) using NDA and patents to evaluate its clinical development and FDA approval
- Examined all clinical trial phase outcomes, to assess drug's pharmacokinetic/dynamic and toxicological properties
- Compared chemistry, safety & efficacy to competing cholesterol drugs, identifying key innovations and limitations
- Presented [technical findings report](#) to professors, addressing trial methodology and translational challenges

SKILLS

- **Programming & Tools:** Python, Embedded C, MATLAB, Git, CUDA, Adobe Illustrator/Photoshop/Premiere Pro
- **Hardware & Systems:** Raspberry Pi, Arduino, PCB Design, CAD, Soldering, Prototyping, Signal Processing
- **Frameworks & Libraries:** Machine Learning, MMPose, PyTorch, scikit-learn, NumPy, Pandas, OpenCV
- **Sports & Interests:** Volleyball (HS Team Captain - Outside Hitter), Golf, Skiing, Tennis, Permaculture/Gardening
- **Language:** Turkish (Native), English (Native), German (A2)