

Nate Polishook

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EDUCATION

Rutgers University School of Engineering

New Brunswick, NJ

Major: Mechanical Engineering (B.S.)

May 2029

- 3.95 GPA (Dean's List)
- Chem E Car, ASME, Gymnastics Club

RELEVANT EXPERIENCE

Robot Wrangler, Data & Manufacturing Operations Intern

June 2026 – Present

Kovari Industries

San Francisco, CA

- Achieved 90% task accuracy on towel and t-shirt folding by operating robots via teleoperation to generate labeled demonstration data for the autonomous garment-folding imitation-learning pipeline
- Assembled custom robotic hands from 15+ 3D-printed components, soldering connectors and control boards while tuning gear tolerances for smooth articulation
- Wired full robot power distribution from on/off switch through dual bus bars (24V/48V) to 720W DC-DC converter, soldering XT30 junctions and daisy-chaining the circuit
- Fabricated precision robot parts through shop machining (bending, tapping, countersinking, chamfering) using SolidWorks, set up a Tormach 1100 CNC mill and began developing CAM programs to accelerate iteration cycles

Petroleum Research Intern

February 2026 – Present

Koehler Instrument Company

Remote

- Authored 2 technical research papers on petroleum-testing and instrumentation topics, synthesizing literature and experimental data into publication-ready documents
- Developed and curated 18 figures and comparative performance tables, including 9 original visualizations and 9 sourced from technical literature, analyzing catalyst efficiency, energy conversion rates, and scalability
- Synthesized literature across 5 neural network architectures (ANN, LSTM, surrogate models, GPR, PIML), identifying surrogate frameworks that cut experimental test points by 80% over conventional optimization
- Coordinated with 2 PhD-level staff across 3 rounds of revisions, incorporating technical feedback on figure design and content accuracy to sharpen clarity for publication

Wastewater Treatment ML Model Project Lead

January 2026 – April 2026

Rutgers School of Engineering

New Brunswick, NJ

- Developed and benchmarked 7 machine learning regression models in MATLAB to predict 5 water quality outputs (dissolved oxygen, nitrate, and ammonium concentrations) across a multi-stage wastewater treatment system
- Evaluated models across multiple train/test splits (60/40 to 90/10) and normalization conditions, identifying linear regression as the top performer with an average RMSE of 1.09 and a composite score of 1.000, outperforming GPR, SVM, and GAM
- Analyzed the tradeoff between prediction accuracy and computational efficiency using a combined RMSE x training time metric, finding SVM performed 13x worse than LR in average RMSE (14.07 vs 1.09) while requiring 4,500x longer training time (24.1s vs 0.005s)
- Owned parameter selection and experimental design within a 5-member team, coordinating meeting schedules and rehearsal sessions to prepare the team's final presentation

TECHNICAL & ANALYTICAL SKILLS

- **CAD & Fabrication:** Fusion 360, Onshape, Design for Manufacturability (DFM), 3D printing (FDM), Carbon-fiber fabrication, Precision machining (bending, tapping, countersinking, chamfering, angle grinding)
- **Electronics & Robotics:** Soldering (PCB, JST, actuators, power electronics), Power distribution (24V/48V bus bars, DC-DC converters, XT30 connectors), Circuit wiring, Embedded component assembly, Teleoperation systems, Robot hardware integration, Mechanical troubleshooting and diagnostic
- **Technical & Analytical:** Python, MATLAB, Excel, Machine learning & regression modeling, Experimental design & data analysis, Statics, Dynamics, Thermodynamics, Heat Transfer, Calculus-based modeling & analysis
- **AI & Emerging Tools:** AI-assisted workflow design, Agentic AI systems, AI-assisted data analysis (Anthropic and Google certified)