

Jayson Khourshid

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EDUCATION

Drexel University, Philadelphia, PA

BS in Mechanical Engineering and Mechanics

MS in Mechanical Engineering and Mechanics

Graduation: June 2026

Accelerated Dual Degree | GPA: 3.70

PROFESSIONAL EXPERIENCE

OPEX Corporation

Mechanical Design Engineer

Moorestown, NJ

March 2025 – September 2025

- Owned development and production readiness of a **RoHS/REACH**-compliant worm-gear jack screw for a **100-lb** robot, driving designs from concept through validation and deployment of **300+ units**.
- Created detailed CAD models and engineering drawings with **GD&T** and **tolerance stack-up analysis**, improving function, assembly, and manufacturability across **3 product lines** and **30+ ECOs** while processing design revisions and updates to support traceability and implementations.
- Designed and machined custom test fixtures for accelerated-life testing, including a drop tester applying **80-lb** cyclic loads in a certain firing order.
- Led **failure** and **root-cause** analysis, developing a vibration-based fault detection **control system** to halt operation and improve test reliability.
- Developed a vibration-sensing **fault-detection** method to improve issue identification, troubleshooting, and **root-cause investigation** during testing.
- Led **supplier coordination** and **cost analysis** for R&D components, guiding design trade-offs and manufacturing decisions.
- Developed **Python-based automation** tools to streamline quality-control testing workflows (**200+ tasks**), reducing test cycle time by **15 minutes**.

Drexel University Senior Design Project

Philadelphia, PA

Team Lead

September 2025 – Present

- Led a multidisciplinary team of **6 engineers** to design and develop a first-of-its-kind **thrust-vectoring** quadcopter, driving the project from concept ideation through system integration, validation, and performance testing utilizing Agile methodologies.
- Designed a **3-DoF** gear-actuated propulsion system, including an **8-gear drivetrain**, enabling decoupled control of vehicle orientation and direction of motion for improved maneuverability.
- Reduced structural mass by **52%** through **generative design optimization** and iterative refinement, maintaining stiffness and failure requirements.
- Integrated **16+ motors**, sensors, and control hardware into a tightly packaged electromechanical system, balancing space constraints, wiring layout, thermal considerations, and serviceability.
- Achieved **30%** improvement in **system efficiency** compared to conventional quadcopter architectures by eliminating reliance on differential thrust.
- Validated system performance through **FEA**, **CFD**, and experimental testing, including sensitivity and convergence analysis to guide design decisions.
- Developed and tested custom flight control software in a Software-in-the-Loop (**SIL**) environment using Linux and Git, enabling system validation.
- Led **DFMEA**-driven risk reduction, identifying and mitigating key failure modes to reduce projected post-prototype failure risk by **70%**.

Teleflex Inc.

Wyomissing, PA

Engineering Co-op - New Product Development

September 2022 – April 2023

- Supported development of a physical **simulation model** replicating in-patient product use, contributing to design, prototyping, manufacturing, and testing in a product launch environment.
- Designed mechanical components using SolidWorks and applied **Moldflow** to guide **injection-molded** part design and tooling decisions.
- Developed **2 design proposals** for legacy product improvements based on market feedback and competing products.
- Conducted and documented **10+ mechanical validation tests**, supporting product compliance and design iteration.

Drexel University College of Engineering

Wyomissing, PA

Engineering Co-op - Undergraduate Research Assistant

April 2024 – September 2024

- Led mechanical design of systems scaling MXene production to **1 kg per batch**, including hardware selection, structural validation, and system layout.
- Built and analyzed database of **400+ research papers** to identify trends in material performance and synthesis.
- Designed and **executed experiments** to validate material properties not available in literature.

SKILLS

Mechanical Design: CAD (CATIA V5, SolidWorks, AutoCAD, Inventor), GD&T (ASME Y14.5), Tolerance Stack-up Analysis, Design for Manufacturability (DFM), Design for Assembly (DFA)

Analysis & Simulation: FEA (Abaqus, Ansys), CFD, Thermal and Structural Analysis, Engineering Calculations, Design Optimization

Prototyping & Testing: Test Fixture Design, Validation Testing, Reliability Testing, Failure analysis, Root Cause Investigation, DFMEA

Programming & Tools: Python, MATLAB, Linux, Git, Excel, Data Analysis, Automation, Arduino, Certified in Lean Six Sigma, Agile

Fabrication: Machining (Manual + CNC), CAM, Injection molding, Sheet Metal, Additive, Hand Tools