

# RYAN KIM

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*Open to relocation and nationwide travel opportunities*

## Career Objective

Aspiring mechanical and biomedical engineer seeking opportunities in medical devices, robotics, and advanced manufacturing. Motivated to contribute in design, prototyping, and problem-solving roles. Planning to begin graduate studies in Mechanical Engineering in 2026 to further deepen technical capability.

## TECHNICAL SKILLS

**Design & Prototyping:** SolidWorks (3D Modeling, Drawings, FEA – Thermal/Structural, CSWA – Mechanical Design Certified), DFA and DFM, GD&T, 3D Printing (FDM), Rapid Iteration, Mechanical Assembly  
**Programming:** Python (OpenCV), C++, MATLAB, Simulink  
**Testing & Tools:** Microscopy, Instron, ImageJ, Spectrophotometry, Environmental Testing (Shock/Vibration/Thermal), Microsoft Office

## EXPERIENCE

### Surgical-Inspired Cable-Driven Gripper

Aug 2025 – Present

*Personal Project*

*Self-Directed*

- Fabricated using SolidWorks and FDM 3D printing.
- Designed a precision cable-driven mechanism in SolidWorks with tight tolerance fits (0.1–0.2 mm) to ensure smooth actuation.
- Applied additive manufacturing principles to achieve consistent, low-cost, and repeatable rapid prototyping.
- Programmed C++ control logic and integrated inverse kinematics for robotic arm manipulation.

### ParaSwing – Robotic Golfing Attachment

Sep 2024 – May 2025

*Capstone Design Project*

*Rutgers University*

- Performed SolidWorks modeling and FEA (thermal/structural) to assess loading during swing impact and reinforce actuator mounts.
- Designed, 3D printed, and assembled mechanical subsystems for rapid prototyping and functional testing.
- Integrated electrical and control components into a mechatronic system to synchronize actuation and motion.
- Modeled swing kinematics in MATLAB to analyze motion profiles and verify consistency across tests.

### Real-Time Face Recognition with OpenCV

May, 2025 – Present

*Personal Project*

*Self-Directed*

- Built a Python desktop tool using OpenCV and the face\_recognition library to detect and identify users from a live webcam feed.
- Created an enrollment workflow that captures faces, generates encodings, and saves them as .pkl files for persistent recognition.
- Designed a clean on-screen interface showing the camera feed, name labels, confidence scores, and options to add or delete registered users; included automatic installation checks for required dependencies.
- Achieved real-time performance around 15 FPS with multi-face detection, error handling, and stable recognition under varied lighting conditions.

## EDUCATION

### Rutgers University, School of Engineering

New Brunswick, NJ

*Bachelor of Science in Biomedical Engineering – Understanding of engineering first principles*

*Conferred May 2025*

## ADDITIONAL EXPERIENCE

### Lamont-Doherty Earth Observatory, Columbia University

Palisades, NY

*Research Assistant*

*Summer 2021*

- Conducted research on the persistence of microplastics in commercial laundry detergents following regulatory bans.
- Used microscopy and fluorescence analysis to detect and quantify microplastic particles across product samples.
- Recorded results and collaborated with research staff to support ongoing environmental impact assessments.

### Best Home Fashion

Closter, NJ

*Quality Assurance Assistant*

*May 2023 – Sep 2024 (Seasonal Employment)*

- Performed visual and dimensional inspections of textile products to ensure proper sizing and defect-free quality.
- Documented inspection results and communicated product issues to the production and management teams.
- Maintained organized workflow and attention to detail in a fast-paced quality control environment.