

Mikul Rana

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EDUCATION

Saratoga High School • Saratoga, CA

Unweighted GPA: 3.91

Weighted GPA: 4.56

High School Diploma

June 2027

RELEVANT COURSEWORK

AP Calculus BC (5) | AP Physics 1 & 2 (5s) | AP Statistics (5) | AP Computer Science A (4) | AP Chemistry (4), Digital Electronics Honors, Journalist Honors | Linear Algebra | Multivariable Calculus | - Transcript Available

RESEARCH & WORK EXPERIENCE

San Francisco State University CARE Lab, *Student Research Assistant*

June 2026 - Aug 2026

- Built Python tools to log and visualize EMG data, synchronize video, timestamp trials, and capture live notes during human-subject testing of an exoskeleton glove.
- Improved the Raspberry Pi 5/YOLO computer-vision pipeline, designed CAD and resin-printed hardware, and benchmarked STM32 serial transmission; co-authoring a paper targeted for IEEE-RAS Humanoids 2026.

Fruity Chutes, *CAD Designer & Assembler*

Aug 2025 - Present

- Manufacture parachutes and release mechanisms used by aerospace organizations, university teams, and hobbyists; produce CAD, filament-printed, and resin-printed components.

International Robotics Academy, *CAD & Mechanics Instructor*

Sept 2025 - Present

- Teach beginner and intermediate CAD to middle and high school students and mechanics to VEX Robotics teams.

LEADERSHIP & INVOLVEMENT

Saratoga High School FRC Robotics, *Lab Manager, Safety Lead & Former Hardware Subsystem Lead*

Aug 2023 - Present

- Manage hardware, manufacturing, and electronics inventory and lab safety; mentor students in CAD, machining, assembly, and STEM outreach.

The Saratoga Falcon, *Entertainment Section Editor*

Aug 2024 - Present

- Edit stories and magazine layouts and mentor writers through reporting, revision, and publication.

Engineering Club, *President & TSA TEAMS Captain*

Aug 2024 - Present

- Led bridge-prototype design and physics instruction; twice qualified for the TSA TEAMS national competition.

PROJECTS

Hand Exoskeleton, *Assistive Robotics Project*

Jan 2025 - Present

- Designed a 468 g tendon-driven wearable with 3D-printed mechanisms, Teensy/Raspberry Pi controls, and YOLO-based adaptive pinch, tripod, and power-grip selection.
- Evaluated 144 trials: 92.36% object-to-grip accuracy, 96.2% five-second grip success, and 0.41 s mean latency; earned Synopsys Engineering Honorable Mention.

Parkinson's Pattern Analysis, *Machine-Learning Research Project*

Jan 2025

- Developed a deep-learning model to analyze hand-drawn patterns for early Parkinson's-disease detection.

Paws on Wheels, *Founder*

Aug 2025 - Present

- Designed adjustable dog wheelchairs using aluminum/PVC frames and custom 3D-printed joints to restore mobility for injured dogs; coordinated iterations with owners and veterinary contacts.

HONORS & CERTIFICATIONS

NCTE Achievement Awards in Writing - First Class | Synopsys Engineering Honorable Mention | AP Scholar with Distinction | Certified SolidWorks Associate (CSWA) | TSA TEAMS Nationals Qualifier (2x)

SKILLS

Mechanical Design & Fabrication: SolidWorks (CSWA), CAD, filament/resin 3D printing, CNC mill and lathe, drill press, bandsaw, soldering

Embedded Systems & Software: Python, C/C++, Arduino, STM32, Teensy 4.0, Raspberry Pi 5, YOLO/computer vision, EMG and data acquisition

Communication: Technical documentation, journalism and editing, peer instruction, project leadership