

Tanuj Ranjith

High School Student - Aspiring AI/ML & Robotics Engineering

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SUMMARY

High school senior with hands-on experience in software engineering, AI/ML, and robotics. Built and deployed full-stack web applications, trained computer vision models, and contributed to University of Michigan Neurobionics Lab's open-source project. Comfortable working with Python, Java, JavaScript, and modern ML frameworks. Recognized through multiple university programs and online courses from Harvard, Stanford, Duke, Michigan, and Google Cloud.

EDUCATION

B. Reed Henderson High School, West Chester, PA

Senior (Class of 2027)

- AP: Computer Science Principles, Computer Science A, AP Physics 1, AP Physics C, AP Cybersecurity, AP Calculus AB, AP English Language and Composition, AP English Literature and Composition, AP U.S. Government & Politics
- Honors: Biology, Pre-Calculus, Algebra 2, Engineering Design and Architecture 1-4
- GPA: 3.8 / 4.0

EXPERIENCE & INTERNSHIPS

Open-Source Contributor - Neurobionics Lab, Open-Source Leg, University of Michigan

Oct 2025 - Present

- Contributed to the [open-source-leg](#) project via documentation, unit tests, and small feature development.
- Collaborated with university researchers and contributors on a low-cost robotic leg platform using GitHub.

AI/ML Intern - HUVTSP, Vanguard Defense El Segundo, CA (Remote)

Jun 2025 - Jul 2025

- Trained a YOLO classification model to ~85% accuracy to classify 80+ military aircraft types.
- Led the aerial/satellite data track, ensuring high-quality labels for downstream object-detection models.
- Detailed dataset trade-offs and the end-to-end labeling pipeline ([GitHub](#))

PATENTS & RESEARCH

Predictive Cable Slack Compensator for Tendon-Driven Robotic Joints

Patent Pending

- Provisional patent for a mechanism and control method that predicts and compensates for cable slack in tendon-driven robotic joints, improving precision and reliability in cable-actuated systems such as prosthetics and dexterous robotic manipulators.

External Research Contributor - Open-Source Leg, University of Michigan Neurobionics Lab

Oct 2025 - Present

- Contributing to the open-source powered prosthetic leg platform through documentation and testing.
- Visited the Neurobionics Lab in person in Ann Arbor and met with the research team.

PROJECTS

VetsITGuide.com - AI Career Guide for Veterans, West Chester, PA

Jun 2023 - Present

- Built an AI-powered web platform using Python, Django, JavaScript, and Google Gemini API to help U.S. veterans transition into IT roles.
- Provided technical resources to educate vets on technical paths like cybersecurity, web development, network engineering, etc., guides them to get certifications on different courses, and provides tools to build their resumes.
- Added 12 learning paths, 89 unique courses, and 50+ companies.

Sutra - Student operating system, West Chester, PA

Aug 2025 - Present

- Built Sutra, a local-first student productivity platform combining notes, canvas pages, classes, assignments, habits, study tools, focus mode, and an AI assistant into one private browser-based workspace.
- Designed a portable .sutra file format so students can own, export, import, and back up their academic data without requiring accounts, servers, or mandatory cloud sync.
- Developed Sutra Assistant to help students organize coursework, generate study materials, plan tasks, and interact with their workspace using AI-powered academic context.

Additional Projects

- Income Classification - Stanford Pre-Collegiate Program: Built a classification model using the Adult Income dataset (UCI ML Repository) to predict whether individuals earn over or under \$50K annually. Trained and fine-tuned multiple models including Logistic Regression, Decision Tree, Random Forest, AdaBoost, Gradient Boosting, XGBoost, Bagging Classifier, and Support Vector Machine (SVM).

- iVoted.com - Brought voting awareness in the local community by building a website to emphasize the importance of voting and distributing door-to-door flyers.
- Pong with NEAT - Python game where an AI opponent is trained using the NEAT algorithm.
- Endangered Animals - Created a website using Python, JS, CSS to build awareness for Animal Endangerment.

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

VEX Robotics - Lead Coder, Exton, PA

Aug 2021 - Present

- Programmed autonomous routines using VEX PROS C++ with PID control, tracking wheels, encoders, and inertial sensor; used odometry to build accurate autonomous paths for competition robots.

Technology Student Association (TSA) - Secretary, B. Reed Henderson High School

Aug 2025 - Present

- Support President/VP, record accurate meeting minutes, manage agendas, send notices/reminders, lead social media & outreach, and coordinate members while channeling feedback to leadership.
- In my first year competing in PA TSA, also our chapter's inaugural year, advanced to the Regional Semifinals and Finals and reached the PA State Conference Semifinals (Seven Springs, April 2025).

Artificial Intelligence (AI) Club - Co-Vice President, B. Reed Henderson High School

Aug 2025 - Present

- Assisted in leading the club, collaborated closely with the President and other executive members, and supported the planning and execution of club activities.
- Organized logistics for meetings and events and managed club documentation.
- Speaker at WCASD AI Night at Rustin High School, speaking to students, parents, educators, and professionals on AI literacy, responsible AI use, and why AI should enhance human thinking rather than replace it.
- Oversaw projects, led committees, and handled distinct areas of the club's operation (outreach, technical projects, and membership engagement).

National Honor Society - Member, B. Reed Henderson High School

Apr 2026 - Present

- Inducted April 2026 at the Henderson Auditorium.

SKILLS

- Programming: Python, Java, JavaScript, C++, Django, NumPy, Pandas, PyTorch, TensorFlow, HTML5, CSS
- CAD & Design: AutoCAD (2D/3D), Inventor, Revit
- Fabrication: Drill press, band saw, 3D printer, laser cutter, Dremel, chop saw, and related shop tools

CERTIFICATES & AWARDS

- Harvard: CS50's Introduction to Programming with Python; CS50's Web Programming with Python and JavaScript
- Stanford: Intro to Machine Learning (Pre-Collegiate Program)
- Duke: Data Science with NumPy, Sets, and Dictionaries; Advances in AI Workshop
- University of Michigan: Joy of Coding
- MedTech: AI and Medical Robotics
- Google Cloud: AI and cloud computing certificates (Gen AI, LLMs, Responsible AI, Kubernetes Engine, and more)
- West Chester Area School District: Honor Roll award from 2023 - Present
- AP Scholar: Jun 2025
- VEX Robotics: Design Award for robot design
- National Distinguished Student Leadership Award (NDSLA), Volunteer Scholars: 2026
- American Citizenship Award (ACA), Volunteer Scholars: 2026
- American Volunteer Service Award (AVSA), Volunteer Scholars: 2026

COMMUNITY SERVICE

- YAPA Kids - Volunteer Tutor **Dec 2024 - Present**
- Sky Meditation Center - Volunteer / Tutor **2024 - Present**
- Schoolhouse.world - SAT Tutor **Jan 2026 - Present**
- ENGIN - Volunteer English Tutor for Ukrainian students **Jul 2024 - Present**
- Sankara Eye Foundation, USA - Volunteer **Aug 2024 - Mar 2025**
- Safe Harbor of Chester County - Volunteer **Jan 2024 - Dec 2024**

LANGUAGES

English (Fluent), Tamil (Fluent), and Spanish (Polite)