Benji Warburton

UK citizen; F-1 student at Stanford; **CPT-eligible for full-time internships Summer 2026**.

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Education

Stanford University Stanford, CA
B.S. Electrical Engineering and Computer Science; GPA: 3.74/4.0 *Expected Graduation: June 2028*

- **Relevant Coursework:** — Computer Systems (Bare-Metal), Probability/Statistics for Computer Scientists, Programming Abstractions (Data Structures), Infrastructure at Scale, Intro to EE, Cloud Computing, Circuits, Mechanics and Special Relativity, Computer Graphics, AI-Enabled Robots
  Planned (Win/Spr '26): — Digital System Design, Signals & Systems, Language Modeling (Graduate), Semiconductor Devices
- **Activities:** — Stanford Student Robotics (Skyrunners), Stanford Solar Car

Skills

- **Languages**: C/C++/C, Python, Java, JavaScript, MATLAB, Assembly, HTML/CSS
- **Systems/Tools**: ROS 2, Git/GitHub, Linux, OpenCV, NVIDIA Isaac Lab (basics), CUDA (basics), SolidWorks/Fusion 360

Experience

Renaissance Philanthropy — *Student Fellow* *Aug 2025 – Present* — Remote

- Built the **Promise Index** to algorithmically surface ∼200 high-potential early-career researchers from **non-OECD** regions for New Horizons–style prize consideration.
- Engineered Python ETL over **80M+ works / 400k+ authors** (OpenAlex/ROR) with **parallelized** fetch/compute (multi-worker pools) and **aggressive caching** (request/result caches, file-checkpointing).
- Computed half-life–weighted, field-normalized **momentum/impact** plus altmetric signals; delivered ranked shortlists with QC dashboards.

Stanford CS — CS123: Intro to AI-Enabled Robots — *Teaching Assistant* *Sep 2025 – Present* — Stanford, CA

- **Only non-graduate TA** (others are MS/PhD); teaching team led by Prof. Karen Liu with co-instructors from **Google DeepMind** and **Apple**, plus Stanford postdocs. I **lead and grade labs**; author lab notes; **run weekly office hours**.
- Mentor **6** teams (**24** students) across **control**, **perception**, **reinforcement learning (policy training)**, and **sim-to-real**.

YASA Motors — *Data Science Intern* *Jul 2023* — Oxford, UK

- Analyzed motor dyno end-of-line test data in Python to identify opportunities to **shorten test cycles**.
- Helped **identify and correct** a measurement issue inflating cogging torque values.

Projects

5-DOF Desktop Robot Arm ROS 2 • C++ • NVIDIA Isaac Lab • custom hardware

- Designed and 3D-printed arm; wrote a **servo control library** for low-cost **Waveshare SC15** servos (bus-level commands, timing/limits, homing); integrated with `ros2_control`.
- **Trained policies in NVIDIA Isaac Lab** (sim) and validated on hardware. Utilised **Nvidia's Groot N1 Model**

ESA *AstroPi* — NDVI from the International Space Station Python • image processing

- Deployed code **onboard the ISS** (ESA AstroPi, Raspberry Pi NoIR) to capture near-IR images during orbital passes; scheduled capture windows and handled exposure/white-balance constraints.
- Implemented a pipeline to compute **NDVI** (channel alignment, basic cloud/lighting normalization) and aggregate regional summaries; produced a reproducible report.

Active Li-ion Battery Balancer (8-cell) Power electronics • Python • Arduino

- Designed and prototyped an active balancing system with logging/calibration tools; safe pack integration and measurement accuracy. *Project won the UK national **TDI Challenge 2023** (Manufacturing Technologies Association).*

Selected Software (misc.) LLM APIs • Node.js • C • Assembly • Unity • C • Android

- **ChatWithForms** — SMS agent that guides users through form filling; **NLP** input sanitization via APIs; asks follow-ups on invalid/missing entries; designed for *very young/old/non-technical* users.
- **CS107E Console (quarter-long)** — Built a simple console from scratch: libraries for **GPIO**, keyboard, graphics, and basic memory management; all done in bare-metal C/Assembly.
- **VR Reaction-Time Trainer** — Native app for Meta Quest 2; timed stimulus/response with adjustable protocols.

Awards & Leadership

- **RISE Global Winner** (1 of 100, ∼0.2%) — robotics education kit under $45; scholarship by Schmidt Futures & Rhodes Trust.
- **FIRST Robotics Competition** — Team captain & Head of Engineering; Judges' Award (Istanbul Regional).