Kevin Wu

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Education

The Johns Hopkins University — Baltimore, MD
B.S. & M.S.E - Computer Science; *GPA: 3.95/4.0; GRE: 339/340* — *Aug. 2022 - May 2026*

- Research Advisors: Prof. Anton Dahbura, Prof. Peter Kazanzides
- Honors & Awards: 2025-26 Masson Fellowship (awarded annually to one CS graduate researcher for outstanding research potential) | Upsilon Pi Epsilon (national CS honor society) | Summa Cum Laude (coming 2026)

EPFL - École Polytechnique Fédérale de Lausanne — Vaud, Switzerland
Sophomore Engineering Exchange - Computer Science; *GPA: 5.4/6.0* — *Jan. 2024 - Jul. 2024*

- Completed 5 graduate-level courses. Focused on advanced topics in Computer Vision, ML, and HCI.

Relevant Coursework

- Computer Science: C/C++ Programming; Data Structures; Computer Systems; Computer Vision; Interaction Design; Algorithms; Augmented Reality; Artificial Intelligence.
- Mathematics: Calculus I & II (2020), Multivariable Calculus (2021), Probability & Statistics, Linear Algebra & Diff. Equations, Maths Foundations for CS (discrete math).

Publications

Working Papers:

- **SurgSync: Time-Synchronized Multi-modal Data Collection Framework and Dataset for Surgical Robotics** [Under review at ICRA 2026]
- **BatVision: Regression-Calibrated Single-View Computer Vision Pipeline for Precise Equipment Analysis and Quality Control** [Extended abstract accepted, MIT Sloan Sports Analytics Conference 2026]

Under Review:

- Isabella Zuccaroli, Mia Russell, Kevin Wu. **The multifaceted nature of financial socialization: A focus group study of emerging adults.** [Under review, International Journal of Home Economics (IJHE)]

Patent Disclosure:

- **Single-View Regression-Calibrated Machine Vision System for Sports Equipment Modeling and Quality Control** (Disclosure filed, U.S. Provisional Patent Application No. 63/917,826)

Research Interests

Research Interests: Robotics Perception & Motion Planning | Computer Vision | Embodied AI

Research

JHU LCSR (Laboratory for Computational Sensing + Robotics) — Baltimore, MD
Research Assistant, with Prof. Peter Kazanzides & PhD candidate Haoying Zhou — *Oct. 2024 - Present*

- **Past Project**: Designed and implemented two novel synchronized data recording pipelines - one for real-time applications, and one for high-throughput recording and offline interpolation - for the da Vinci Research Kit (dVRK). Engineered a multi-threaded ROS architecture with dedicated synchronization and writer threads, ensuring efficient multi-modal data collection across stereo video, dVRK kinematics, and custom sensor streams. Integrated custom hardware modules, including an upgraded chip-on-tip endoscope and a capacitive contact sensor.
  Delivered a research talk at the LCSR to introduce this novel pipeline, which has since been made available lab-wide to support dVRK data collection and training efforts.
- **Upcoming Work**: Leading the creation of a context-aware dissection automation for the da Vinci Surgical System (DVSS) that integrates state-of-the-art segmentation models (e.g., SAM2) and visuomotor policies (e.g., Action Diffusion Policy), while also allowing surgeon intervention upon detecting potential errors or discrepancies.

Computer Vision Research with the Baltimore Orioles — Baltimore, MD
Lead Researcher, with Prof. Anton Dahbura — *Aug. 2024 - Oct. 2025*

- **Abstract**: Designed BatVision, a single-view computer vision pipeline for automated, sub-millimeter measurement of sports equipment, supporting downstream applications such as equipment performance analysis and quality control. Implemented and benchmarked multiple segmentation algorithms and regression-based calibration techniques, eventually delivering a solution (K-means clustering + GAM) that produces the highest precision (MAE 0.148 mm; 0.2% relative error) across varied lighting and imaging conditions.
- **Impact**: Project gained national attention following the release of the NY Yankees' "Torpedo Bat," and was featured on CBS News, JHU Hub, NY Times "The Athletic" podcast, and various other media outlets.
  Currently developing a patent disclosure to support potential commercialization of this pipeline.

Computer Vision Research with Vail Resorts Baltimore, MD
Lead Researcher, with Prof. Anton Dahbura *Apr. 2025 - Present*

- **Project Abstract**: An intelligent aerial ropeway monitoring system that integrates advanced visual perception modules (YOLOv12, OpenPose, etc) with real-time decision-making and control policies. Beyond scene understanding, the system leverages a novel trajectory forecasting and risk assessment model that we design to classify unsafe loading/unloading events and trigger context-aware interventions. Awarded JHU WSE Engineering Design Center Funding in Aug. 2025.
- **Goals**: Construct pipeline for depth-aware scene reconstruction from monocular vision (short-term); establish pilot deployments at Mid-Atlantic ski resorts (short-term); drive a measurable reduction in chairlift incidents (mid-term); achieve 33% reduction in lift operator staffing across all Vail-operated resorts (long-term).

Financial Behavior Research Baltimore, MD
Co-Author, with Dr. Mia Russell *Aug. 2023 - Jun. 2025*

- **Topic**: The multifaceted nature of financial socialization: A focus group study of emerging adults
- **Abstract**: Performing thematic analysis on focus group data gathered, we identify family norms, peer interactions, and educational resource access as key influences driving financial behavior in college-aged adults.

Professional Experience

iD Tech @ MIT Boston, MA
Full-Time Instructor *Jun. 2025 - Aug. 2025*

- **Responsibilities**: Serving as full-time instructor for Academy Next, iD Tech's highest level, application-based summer program held at MIT; instructed 32 students across 4 two-week sessions and mentored 14 successful team projects; delivered instruction on CV (traditional & ML techniques), LLM, GenAI, API usage, and full-stack web frameworks.
- **Performance**: Student feedback: 95.5% reported positive (exceeded expectation - 81.8%; met expectation - 13.6%). Parent feedback: 100% reported positive (exceeded expectation - 100%).

Jobiter - AI Job Search Startup Baltimore, MD
Founder, Product Manager *Nov. 2024 - Present*

- Led a team of 7 developers to build Jobiter, an intelligent job application platform streamlining resume optimization, application auto-filling, and job discovery for college students and new grads.
- Secured AWS & university funding; deployed scalable infrastructure with RDS, CloudFront, ECS, etc.
- Oversaw development of industry-leading resume parser and browser auto-fill extension.
- Directed user research; conducted > 50 interviews to refine product flow; led UI/UX prototyping and iteration.

Quture - A Mobile Software Startup St. Louis, MO
Technical Founder *Sep. 2023 - Dec. 2024*

- Co-founded Quture, an AI-powered mobile platform for fashion enthusiasts to showcase styles, discover secondhand listings, and participate in decentralized global P2P trading.
- Led UI/UX design of our feed-based mobile app; implemented front-end features powered by React Native; oversaw tech hiring of experienced developers, and ensured smooth handoff and team continuity at my exit.

Mentorship & Community Service

JHU Whiting School of Engineering Baltimore, MD
Course Assistant *Jan. 2023 - Present*

- Assisting Dr. Mia Russell with her Spring 2023 course *Managing Personal Finances*, Fall 2023, 2024 & 2025 course *Engineering Management & Leadership* (a capstone course for 4th-year engineering students), and Spring 2025 course *Management Theory and Practice*.
- Carrying out class sessions in the professor's absence, and independently leading key course activities.

JHU Clark Scholars Program Baltimore, MD
Peer Leader *Mar. 2023 - Jan. 2024*

- Assisted in the planning and execution of a week-long program orientation.
- Planned ongoing mentorship activities and excursions throughout the academic year.

Johns Hopkins Undergraduate Admissions Baltimore, MD
Admissions Ambassador *Oct. 2022 - Jan. 2024*

- Selected & hired as admissions ambassador; led 1-2 tours per week and facilitated other admissions events.

Other Pursuits

Aviation: Grew up dreaming of flying; funded through hard work; FAA-licensed private pilot since 2022.
Alpine Skiing: Explored over 20 ski resorts across the world; washed-up ski racer; amateur ski instructor.
Motocross (dirt tracks moto racing): Trained & competed in the amateur 250cc class.