Ege John Balci

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EDUCATION

PURDUE UNIVERSITY COLLEGE OF ENGINEERING
First Year Engineering (FYE), Projected Bachelors of Science (2029)

THOMAS JEFFERSON HIGH SCHOOL FOR SCIENCE AND TECHNOLOGY
2021-2025 (4.3/4.7), SAT 1560/1600 (99% percentile)

INTERNSHIPS

AI Integration Development and System Migration Intern | Chainwise CPA (2025, 40 hr/week)

- Automated accounting processes by integrating AI-driven workflows and cross-platform systems, handling **1.7 million dollars** of client deals.
- Implemented 3 active real-time AI project management and task automation using tools like Zapier and Claude
- Developed three custom API endpoint integrations leveraging JavaScript and cloud computing for scalable solutions.
- Managed system migration tasks across 3 new platforms and implemented AI experiences in ClickUp, Karbon, and Microsoft Office suite.
- Presented final accomplishments to the board of executives and important, high-valuation clients.

PROJECTS AND RESEARCH EXPERIENCE

Purdue CubeSat Payload Developer (2025 - Present)

- Developing propulsion system for a novel electric *pulsed-magnetoplasmadynamic* thruster in a 6u CubeSat sponsored by the UNP program from the Air Force.

PSP Hybrids Pavionics and Propulsion Engineer (2025 - Present)

- Developing the payload avionics propulsion system for Purdue Space Program's hybrid rocket, Spectre

Lead Propulsion Engineer | Caelus Rocketry (2021 – 2025)

- Led the propulsion team (17 students) in the complete design, manufacturing, and integration of a liquid-fueled rocket engine, culminating in the successful **completion of cold flow** tests and **full readiness** for static fire.
- Supervised the hands-on CNC manufacturing of the rocket engine, injector, and plumbing systems utilizing resources from an **official sponsorship with the University of Maryland's Terrapin Works.**
- Secured scholarships for members through relations with **George Mason University** and presented annually at **GMU Space Day**
- Cultivated professional relationships with industry mentors and was invited to present project milestones at an exclusive aerospace workshop at the Embassy of Switzerland.

Mechatronics and Low-Speed Vehicle Project Manager | Self-Driving Engineering Team (2021 – 2024)

- Led a multi-disciplinary team of 7 in the development of a self-driving car for the IROS F1Tenth Challenge.
- Engineered an **autonomous Low-Speed Vehicle (LSV)**, integrating real-time sensor fusion, SLAM algorithms, and decision-making via Donkeycar.

AI/ML Researcher | TJHSST Astronomy & Astrophysics Lab (2024 – 2025)

- Developed a **YOLOv5s deep learning model** for **asteroid tracking**, implemented on Jetson Nano for real-time celestial object detection.
- Integrated system with pre-existing web framework **ION** for remote student access from anywhere in the world

Engineering Researcher | TJHSST Engineering Research Lab (2024 - 2025)

- Designed and built a **Gyroscopic Stabilized Pencil** to assist individuals with essential tremors & cerebral palsy.
- Integrated computer vision algorithms and microcontroller-based stabilization mechanisms via Raspberry Pi 5 and ESP32-S3.
- Developed weighted sensor fusion algorithms to counteract tremors in real-time.

LEADERSHIP & EXTRACURRICULARS

TJ Outdoors | President & Secretary (2022 - 2025)
- Organized 30+ environmental awareness sessions and led weekly outdoor activities for 20+ students.

ATA-DC Young Cultural Ambassador (2022 - 2023)
- Led 23 cultural events, including the Turkish Cultural Festival, to promote cross-cultural understanding.

PC Rebuilders | Tech Volunteer (2021-2023)
- Refurbished 50+ laptops for underprivileged students, diagnosing and repairing hardware failures.

TECHNICAL SKILLS

- PROGRAMMING: Python, Java (OOP, AI/ML applications)
- ENGINEERING & CAD: Onshape, Inventor, Fusion 360, MATLAB, Circuit Design
- AI & DATA SCIENCE: Deep Learning, Computer Vision, TensorFlow, PyTorch, Data Analysis, MatPlotLib
- ECE/AERO: Embedded Systems, Robotics, Control Systems, Rocket Propulsion, Gyroscopic Stabilization

ADDITIONAL EXPERIENCE

JOHNS HOPKINS
2023, Data Analytics Workshop (1 credit) GPA: 4.0 (Unweighted)

HARVARD UNIVERSITY
2024, Generative Artificial Intelligence: From the Basics to the Policy Implications
PASS

VOLUNTEERING

Earth Sangha Wild Plant Nursery
- Conservation and restoration of the native plant communities that are essential to the DC area's ecological health

Thyrocure Student Corp
- Published educational diagrams of cancerous and nerve cells in medical magazines.