

# Aarav Kalpesh Upadhyay '30

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## OBJECTIVE

*To matriculate at the University of Michigan in the fall of 2026 as a Mechanical Engineering major, with a minor in Entrepreneurship, as preparation to become a Startup Founder in Robotics.*

## EDUCATION

<b>GPA: 96.63/100</b>	High Technology High School	765 Newman Springs Road
SAT Math: 790	2022-2026	Lincroft, New Jersey 07738
SAT Reading & Writing: 750		(732) 842-8444
<b>Composite Score: 1540</b>		tbufis@ctemc.org

## SPECIAL COURSES:

Engineering Design & Development Capstone	12	PLTW Digital Electronics	11
Senior Mentorship - AT&T Entrepreneurship	12	Research Practicum	10
Multivariable Calculus	12	PLTW Principles of Engineering	10
AP Physics C	12	AP Computer Science A	10
AP Statistics	12	Introduction to Research	9
Current Global Issues	12	PLTW Introduction to Engineering Design	9
Financial Literacy	12	PLTW Computer Integrated Manufacturing	9
AP Calculus BC	11	Data Analysis	9

## PATENTS

### 3D-Printed Vibration Damper with Multilayer Structure for Rotary Motor Shafts (Nonprovisional)

June 29, 2025 – US 19253957

Advances the concept of a unique multi-layer damping system featuring spring-assisted energy dissipation.

### 3D-Printed Damper for Unwanted Motor Shaft Vibrations (Provisional)

June 29, 2024 – US 63666165

Developed a novel vibration damper tested to reduce motor shaft vibration by 40%, despite a 10% increase in shaft imbalance.

## HONORS & AWARDS

### International Recognition & Awards:

- Diamond Challenge 2025 Limitless World Summit Invitee
- Top 100 Team Finalist out of 9,800 Participants: 2024 Blue Ocean Student Entrepreneur Competition
- Semifinalist: The 2024-2025 Columbia Junior Science Journal

### State Recognition & Awards:

- 1<sup>st</sup> Runner-up New Jersey: Technology Student Association – Animatronics National Qualifier
- 2<sup>nd</sup> Runner-up New Jersey: Technology Student Association – Drone Challenge National Qualifier
- American Society of Naval Engineers – Delaware Valley Section Award: Delaware Valley Science Fair
- Constellation Energy Award: Delaware Valley Science Fair
- Excellence in 4-H Public Speaking Presentation Competition (2X County-Level, 1X State Level)

### Regional/School Recognition & Awards:

- 1<sup>st</sup> Place: Jersey Shore Science Fair 2024 Intermediate Engineering
- Think Award: Ranney School VEX V5 Robotics High Stakes Tournament
- National Honor Society Inductee

*Only a life lived for others is a life worthwhile.*

~ Albert Einstein

## CERTIFICATES

Federal Aviation Administration Part 107 Remote Pilot Certificate (Small Unmanned Aircraft System)

\*(DATE UNKNOWN DNF) August 2025 – August 2027

Federal Aviation Administration The Recreational Unmanned Aircraft System Safety Test Completion

June 2025 – Present

Autodesk Certified Associate in CAD for Mechanical Design | August 2023 – August 2025

Global Spanish Seal of Bilingual Proficiency

January 2025 – Present

Blue Ocean Entrepreneurship | May 2024 – Present

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## EXTRA-CURRICULAR ACTIVITIES

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**Upira™ Dronetech Startup Founder | August 2024 – Present**  
B2B/B2C aimed at providing access to Artificial Intelligence-enhanced unmanned aerial technology to local first responders.

**VEX Robotics | June 2024 – Present**

**June 2024 | Mechanic and Lead Documenter: Team 765X**

**June 2025 | Lead Mechanic and Documenter: Team 765C**

Led 500+ pages of robotic and engineering documentation. Iterate robotic design and build using Autodesk Fusion.

**Technology Student Association | September 2022 – Present**  
**September 2024 | TSA Board Member**

Organized 160+ club members into 55+ teams; fundraised \$500. Modeled a drone in Computer-Aided Design; developed 2-axis owl animatronic featuring embedded systems and a multi-branch storyline; presented a 20+ page paper on novel nutrition via transdermal patches and hydroponics, as a competitor.

**Student Council | September 2023 – Present**  
**September 2024 – June 2025 | Class President**

Raised \$5,700 by organizing and operating 20+ events for the class and school, featuring collaboration with other schools. Spearheaded a tournament with diverse competitions for the student body, resulting in 100% participation.

## WORK EXPERIENCE

**Kumon of Oakhurst | November 2022 – March 2023**

*Instructed 3-16-year-olds on math and language arts skills. Graded 100+ worksheets daily; provided valuable feedback.*

**Summer Recreation Camp Counselor**

**July 2022 – August 2022**

*Ensured safety and engagement for 15-20 campers across the 1<sup>st</sup> and 4<sup>th</sup> grades; directed 2+ events and games daily.*

## INDEPENDENT RESEARCH

**YEVLA: A Novel Cost-Effective Unmanned Aerial Vehicle for Search and Rescue Operations**

**September 2024 – March 2025**

*Assembled a drone capable of 40km flight and explored two-way audio communication using long-range radiofrequency modems.*

**A Novel 3D-Printed Damper to Mitigate the Effects of Unwanted Vibration in Motors**

**January 2023 – June 2024**

*Applied statistical analysis of accelerometer data from varying levels of motor shaft vibration to assess damper effectiveness.*

## TRAVEL EXPERIENCE

- **Domestic**

Arizona, California, Connecticut, Florida, Illinois, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island, South Carolina, Tennessee, and Washington D.C.

- **International**

India

**4-H It's Awe Good Builders Club Officer**

**September 2023 – Present**

Utilize woodworking to build 7+ artifacts for locals. Manage social media and events; teach STEM to youth.

**Finance Club | September 2022 – Present**

**June 2025 | Director of Entrepreneurship**

Engaged in club activities and entrepreneurship competitions. Lead entrepreneurial activities, events, and mentorship for 80+ club members.

**Research and Connections Club**

**September 2022 – June 2025**

**September 2024 | Fundraising and Outreach Chair**

Oversaw 10+ social media posts and 3 speaker events for 180+ club members. Sold \$?? of club-merchandise.

**Garba | October 2014 – Present**

Joined hundreds in a Gujarati Folk Dance celebrating culture and rhythm through music and movement.

**Track and Field | March 2021 – March 2024**

Trained for and competed in the 1600 Meter. Encouraged and mentored newer teammates.

## COMMUNITY SERVICE

**HeadStart Monmouth Principles of Engineering Teacher | July 2024 – August 2024**

Tutored 3+ students on Simple Machines and Gear Ratios.

**HTHS STEM Summer Camp Counselor**

**July 2023 – Present**

Teach 10+ students Computer-Aided Design and Robotics. Maintain 3+ 3D-printers for camp operation. Guide students through technical projects.

**Wayside Elementary School Afterschool Tutor**

**January 2023 – Present**

Assist +15 students weekly with academic assignments.

**Monmouth County Indian Association Student Volunteer | October 2021 – Present**

Help coordinate and support in all stages of cultural and religious events hosting 400+ people; Donated \$470 and non-perishable items to Fulfill FoodBank.

## LANGUAGES

- Conversational Spanish
- Basic Gujarati
- Basic Hindi