

# Yash Dagade

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## EDUCATION

### Duke University

Durham, NC

B.S. in Mathematics and Computer Science (*A.B. Duke Full-Ride Merit Scholar*)

2024 – 2028 GPA: 4.0

- **Coursework:** MATH 501 Algebraic Structures I; MATH 403: Advanced Linear Algebra; MATH 221 Linear Algebra; MATH 281S Problem Solving Seminar; ECE 685D Intro to Deep Learning; ECE 689 Advanced Topics in Deep Learning; ECE 687D Theory & Algorithms of Machine Learning; COMPSCI 572 Natural Language Processing; THEATRST 242S The Art of Improvising.

\* Duke: course number  $\geq 500$  indicates graduate-level.

### University of Minnesota, Twin Cities

Minneapolis, MN

Dual Enrollment (PSEO)

2022 – 2024 GPA: 4.0

- **Coursework:** CSCI 1133 Introduction to Programming Concepts; CSCI 2011 Discrete Structures; CSCI 1933 Introduction to Algorithms and Data Structures; CSCI 2041 Advanced Programming Principles (OCaml); CSCI 3003 Introduction to Computing in Biology; CSCI 4511W Introduction to Artificial Intelligence; CSCI 5521 Machine Learning Fundamentals; CSCI 5461 Functional Genomics, Systems Biology, and Bioinformatics; MATH 2373 Linear Algebra and Differential Equations; PHYS 1401V Honors Physics I (Top 10%); ME 3331 Thermodynamics; ME 3332 Fluid Mechanics.

\* UMN: course number  $\geq 5000$  indicates graduate-level.

### University of Oxford, New College

Oxford, UK

Visiting Student (*A.B. Duke Scholarship*): Ethics and Philosophy of Artificial Intelligence

Summer 2025 Grade: A–

- **Coursework:** Ethics and Philosophy of Artificial Intelligence.

## EXPERIENCE

### Researcher at Yann LeCun's Lab

New York, NY

*Computational Intelligence, Vision, and Robotics Lab at NYU*

May 2025

- Worked on [RectifiedLpJEPA](#), a controllable sparsity-based self-supervised learning method that trains models on maximum-entropy sparse representations, enabling highly sparse yet performant pretraining. See [lpjepa.com](https://lpjepa.com) for details.
- Worked on [Radial-VCReg](#), a self-supervised learning method augmenting VICReg with a radial Gaussianization loss that transforms a broader class of feature distributions toward normality
- Presented at NeurIPS 2025 workshops: [Symmetry and Geometry in Neural Representations](#) and [UniReps](#); [poster](#).

### Research Engineer at Jirong Hong's Lab

Minneapolis, MN

*Flow Field Imaging Lab*

2022 – 2024

- Led development of [SkyWindFarm](#), an airborne wind energy system; first author and inventor on a [utility patent](#).
- Applied Reynolds–Averaged Navier–Stokes with SST  $k-\omega$  turbulence modeling to optimize vertical-axis wind turbines, improving the coefficient of performance ( $C_p$ ) as a function of tip-speed ratio ( $\lambda$ ).
- Conducted 6-DoF CFD simulations on the Agate supercomputer at UMN MSI, wind tunnel experiments at the Akerman Hall wind tunnel, and outdoor flying-prototype field tests to design, validate, and advance the system to TRL 4.
- Won \$30K+ in awards, including 3rd Place Grand Award at ISEF 2023 & 2024, \$10,000 Special Prize (ISEF 2024), and Regeneron Science Talent Search 2024 Finalist. Check out: [Project paper](#); [prototype flight video](#); [technical explanation](#).

## PROJECTS

### ConnectU.ai

2025

- Built [ConnectU.ai](#), a mentor–mentee pairing platform; formulated matching as a constrained optimization problem and implemented matching via the Hungarian algorithm over embedding similarity.
- Deployed end-to-end on AWS using EKS, EC2, ECR, Route 53, ALB, ACM, HPA, and S3 with scalable Kubernetes-based infrastructure.

### AI Systems for Distracted Driving Prevention

2022

- Safer Route Planning Algorithm
  - \* Designed a momentum-based routing algorithm optimized over 3.1M+ accident records spanning 22 years of historical data from the Minnesota Department of Transportation to construct mathematically safer routes.
  - \* Deployed as a live route-planning system at [idontwannadie.lol](https://idontwannadie.lol); demo [video](#).
  - \* Won Best Use of Statistics and Best Community Impact awards at PennApps XXV.
- Eye Distraction Alertness (EyeDa) Device
  - \* Prototyped a real-time distracted-driving detection system and led a 15-person engineering team.
  - \* Presented at the Minnesota Towards Zero Deaths Conference to law enforcement and policymakers.
  - \* Media coverage: [KARE11](#), [CBS](#), [Star Tribune](#); device [video](#).

## OTHER

**Awards:** [Regeneron STS Scholar](#); [YC AI SUS Hackathon — 1st Place](#); USNCO Qualifier (5th, MN); [National Merit Scholar](#)

**Skills:** Python, PyTorch, PyTorch Lightning, NumPy, Slurm, C/C++, JavaScript/TypeScript, React.js, Node.js, HTML/CSS, Java, SQL, MongoDB, Docker, Kubernetes, AWS, Julia, MATLAB, SolidWorks, Fusion 360, ANSYS Fluent.

**Languages:** English (Fluent), Hindi (Fluent), Love (Informally Proficient).

**Interests:** Philosophy (Nietzsche, Girard), Building and Understanding Intelligence, Mathematics, Rowing, Long-Distance Running.