

# 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:** 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; COMPSCI 590 Advanced Topics in Computer Science (Advanced Web App Development); MATH 501 Algebraic Structures I; MATH 221 Linear Algebra; MATH 281S Problem Solving Seminar; 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

New York, NY

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

May 2025

- Collaborated with Yilun Kuang, Tim Rudner, Randall Balestrieri, Yann LeCun
- Worked on [Radial-VCReg](#), a self-supervised learning method augmenting VICReg with a radial Gaussianization loss
- Proved theoretical guarantees showing Radial-VCReg transforms a broader class of feature distributions toward normality compared to VCReg; demonstrated consistent empirical improvements on synthetic and real-world benchmarks.
- Presented at **NeurIPS 2025** workshops: [Symmetry and Geometry in Neural Representations](#) and [UniReps](#); [poster](#).

### Research Engineer – University of Minnesota, Twin Cities

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
- [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](#); 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

**Skills:** Python, PyTorch, Slurm, Weights & Biases, C/C++, JavaScript/TypeScript, React.js, Node.js, Express.js, HTML/CSS, Java, Django, SQL, GraphQL, MongoDB, Apache Spark, Docker, Kubernetes, AWS, Julia, MATLAB, SolidWorks, ANSYS Fluent.

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

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