


# Ashwin Shenai

M.Sc. Computer Science, ETH Zurich

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ashwin2802.github.io 

## Education

### **ETH Zurich**

M.SC. COMPUTER SCIENCE

*Major:* Machine Intelligence, *Minor:* Information Security

*Thesis:* Designing Path-Parametric Rewards for Legged Parkour

*Advisors:* Marco Hutter

Zurich, Switzerland

09.2023 – 06.2026

GPA: 5.8/6.0

### **Indian Institute of Technology Kanpur**

B.TECH. ELECTRICAL ENGINEERING

*Minors:* Algorithms, Computer Systems, Machine Learning & Applications

*Thesis:* Proximal Algorithms for Smoothed Online Convex Optimization with Predictions

*Advisors:* Ketan Rajawat

Kanpur, India

07.2018 – 07.2022

GPA: 9.7/10.0

## Publications

\* denotes equal contribution.

### **Conferences**

[C1] *Dream to Fly: Model-Based Reinforcement Learning for Vision-Based Drone Flight* [2501.14377]

Angel Romero\*, **Ashwin Shenai\***, Ismail Geles, Elie Aljalbout, Davide Scaramuzza

IEEE International Conference on Robotics & Automation (ICRA), 2026.

We present the first autonomous agent that is able to fly a quadrotor platform by mapping pixels to commands, without any intermediate representations or explicit state estimation.

### **Journals**

[J1] *Proximal Algorithms for Smoothed Online Convex Optimization With Predictions* [2212.04459]

Spandan Senapati, **Ashwin Shenai**, Ketan Rajawat

IEEE Transactions on Signal Processing, 2023

We propose a novel first-order algorithm for solving online optimization problems where future cost predictions are available, and show that it performs better than gradient descent.

## Work Experience

**ETH Zurich** ◇ Department of Computer Science

TEACHING ASSISTANT, Foundations of Reinforcement Learning

Designed new homeworks and exam questions, conducted exam review sessions.

Zurich, Switzerland

02.2025 – 07.2025

**Microsoft India (R&D)** ◇ Computational Advertising

DATA & APPLIED SCIENTIST

Serving ads on billions of Bing searches per day, in 100+ countries and 14+ languages.

Contributions to extending offline retrieval pipelines generated 8% YoY (~\$500M) revenue growth.

Built an offline evaluation suite improving iteration time for new models from weeks to days.

Trained a new dense retriever that lead to ~6x resource savings and 2-4% revenue gains.

Tech: pytorch, C#, ONNX, Microsoft Azure, A/B testing.

Bengaluru, India

07.2022 – 07.2023

## Internship Experience

### **CDSpace Robotics**

AUTONOMY INTERN

Bengaluru, India

10.2022 – 03.2023

Worked on learning-based computer vision algorithms for target identification, image stabilization and object tracking, to be deployed on autonomous VTOL aircraft.

Tech: pytorch, OpenCV, NVIDIA DeepStream.

### **Microsoft India (R&D) ◇ Computational Advertising**

DATA & APPLIED SCIENTIST INTERN

Bengaluru, India

05.2021 – 07.2021

Deep dive into transformer-based text information retrieval.

Benchmarked state-of-the-art techniques and presented insights on key areas of improvement.

Tech: pytorch, Microsoft Azure.

## Teaching Experience

### **ETH Zurich**

TEACHING ASSISTANT – Foundations of Reinforcement Learning

Spring 2025

Designed new homework and exam questions, conducted exam review sessions.

### **Indian Institute of Technology Kanpur**

ACADEMIC MENTOR – MTH101: Real Analysis

MTH102: Linear Algebra & Ordinary Differential Equations

2019 – 2020

Conducted tutorials and exam review sessions, provided one-on-one mentoring.

## Honors & Awards

### **Indian Institute of Technology Kanpur**

PROFICIENCY PRIZE ◇ Department of Electrical Engineering

2022

for the best undergraduate project work amongst ~150 graduating students.

SCIENCE & TECHNOLOGY EXCELLENCE AWARD ◇ Students' Gymkhana

2022

for exceptional performance in technical extracurricular activities and intercollegiate competitions.

ACADEMIC EXCELLENCE AWARD ◇ Dean of Academic Affairs

2019 – 2022

for ranking in the top 10% every academic year.

## Technical Proficiencies

PROGRAMMING LANGUAGES: C/C++, Python, Bash, MATLAB

C#, Verilog, MySQL, Java

Rust, Nim

LIBRARIES: pytorch, Jax, ROS1, OpenCV, PX4, Tensorflow

UTILITIES: git, Docker, \*nix

MARKUP LANGUAGES:  $\LaTeX$ , Markdown, HTML, CSS, TOML, YAML, XML

## Reviewer Activities

Conference on Decision and Control (CDC)

2023

## Achievements

TOP 10, International Aerial Robotics Competition Mission 9 Simulation Challenge	2021
RANK 1, BOSCH's Traffic Sign Recognition Challenge ◇ Inter IIT Tech Meet 9.0	2021
RANK 3, DRDO DGRE's Obstacle Avoidance Challenge ◇ Inter IIT Tech Meet 9.0	2021
TOP 100, Swadeshi Microprocessor Challenge	2020
TOP 5%, Shell.ai Wind Farm Layout Optimization Challenge	2020
TOP 50, Flipkart GRiD 2.0 - Robotics Challenge: Indoor Autonomous Drone	2020
RANK 1, DRDO SASE UAV Fleet Challenge ◇ Inter IIT Tech Meet 8.0	2020
TOP 15, International Micro Aerial Vehicle Challenge 2019	2019
RANK 408/155158, Joint Entrance Examination (Advanced)	2018
RANK 513/1043000, Joint Entrance Examination (Mains)	2018
RANK 214, Kishore Vaigyanik Protsahan Yojana (KVPY)	2018
RANK 15, Regional Mathematical Olympiad ◇ Maharashtra, India	2018

## Community Service

### **Indian Institute of Technology Kanpur**

ASSOCIATE HEAD (TECHNICAL), Science & Technology Council IITK	2021 – 2022
CONTINGENT LEADER, 10th Inter IIT Tech Meet	2021 – 2022
TEAM LEAD, Aerial Robotics IITK	2020 – 2021
STUDENTS' SENATE NOMINEE, Departmental Undergraduate Committee	2020 – 2021
MANAGER, Campus Wing, Outreach Cell	2020 – 2021
STUDENT GUIDE, Center for Mental Health and Wellbeing	2019 – 2022
ACADEMIC MENTOR, Center for Mental Health and Wellbeing	2019 – 2020
SECRETARY, Robotics Club IITK	2019 – 2020

## Language Skills

NATIVE/BILINGUAL:	English, Konkani, Hindi
ADVANCED:	Marathi, Kannada
ELEMENTARY:	German (A2), Japanese