

Rayhaan Khan

Navi Mumbai, India

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Education

- **Podar International School** Nerul, Navi Mumbai
Cambridge International A Levels Graduating 2027
 - **Predicted A Levels:** Mathematics A*, Computer Science A*, Marine Science A*, Physics A, Biology A, English A
 - **AS Level:** Computer Science A, Marine Science A (highest in cohort). IGCSE: A*A*AAA
 - **Tests:** SAT 1470 (Math 770, Reading and Writing 700). IELTS Academic 8.0

Research Experience

- **Mohamed bin Zayed University of Artificial Intelligence (MBZUAI)** Abu Dhabi
Research Intern; supervisors Dr Salman Khan and Hanoona Rasheed 2026 – Present
 - **Test-time training:** Porting ByteDance Seed's in-place test-time training from text models to a Qwen vision-language model so that weights update during deployment; baseline for multimodal LLM work. [[GitHub](#)] [[Interim Report](#)]
- **ADIA Lab** Abu Dhabi
Research Intern; supervisor Dr Shadab Khan, Senior Scientist Apr 2025 – Jun 2026
 - **Optimizer state recovery:** Studied whether optimizer state left out of public checkpoints can be rebuilt so that continued training stays stable.
 - **Pipeline:** Logged optimizer buffers while training a CIFAR-10 CNN; measured rebuilt against original state. First author of the resulting manuscript, under review at TMLR. [[Manuscript Link](#)]
- **M42** Abu Dhabi
Research Intern; supervisor Dr Shadab Khan, SVP of AI 2024
 - **Diabetes risk screening:** Built and deployed a web app on NHANES data (XGBoost) with feature-importance explanations, subgroup checks and a what-if dashboard; documented with Microsoft TDSP. [[GitHub](#)] [[Tech Report](#)] [[Demo Application](#)]

Manuscripts

- **R. Khan, S. Khan.** *Stable Continual Pre-training from Weights-Only Checkpoints via Rebuilt Optimizer State.* Under review at *Transactions on Machine Learning Research* (TMLR), 2026 ([manuscript link](#)).

Leadership and Initiatives

- **Mumbai AI Lab** Navi Mumbai
Founder Nov 2025 – Present
 - **Socratic AI sessions:** Teaches students to use AI as a questioning tutor so they keep doing the reasoning; alternate-Sunday sessions at three levels, built on studies of AI tutoring and retrieval practice.
 - **Open source:** Socratic tutor plugin for Claude [[GitHub](#)], under review by Anthropic for listing in its plugin directory.
 - **Origin:** Grew out of the STEM Club founded at Podar International School in grade 10 (2024): peer sessions on training a first model and talks on AI to grade 3 classes.
- **IIT Bombay National Robotics League** Mumbai
Mentor, school grade 9 team 2025
 - Guided Arduino control and a small vision model for obstacle avoidance; the team placed first among 68 schools.
- **Intertidal survey, Juhu rocky shore** Mumbai
Marine Science fieldwork 2025
 - Quadrat sampling and a Lincoln index estimate of a clam population; recorded a juvenile bamboo shark.

Awards

- International Computer Science Competition (ICSC) 2025: Finalist
- IIT Bombay National Robotics League 2025: First place among 68 schools, as team mentor
- District inter-school 3D Printing Competition 2024: Third place
- Computer Wiz Award 2022, Podar International School: highest CS proficiency at grade level

Skills and Interests

- **Programming:** Python (NumPy, pandas, scikit-learn, PyTorch, XGBoost, fastai), Git, Arduino (C/C++), 3D printing
- **Courses:** Harvard CS50P (2024, verified); fast.ai Practical Deep Learning for Coders (2022)
- **Languages:** English and Hindi (fluent), German (beginner) **Interests:** wildlife photography, shark biology, Tintin