# Subhamon Supantha

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## Current Affiliation

**Pre-doctoral Researcher**      July, 2025–June, 2026
*Center for Machine Intelligence and Data Science,* IIT Bombay      *PI: Prof. Parthe Pandit*

## Education

**Chennai Mathematical Institute**      2023–2025
*Masters in Computer Science*

**University of Hyderabad**      2020–2022
*Masters in Economics*

**Jadavpur University**      2017–2020
*Bachelors in Economics*

## Publications and Preprints

**Universal Dynamic Regret and Constraint Violation Bounds for Constrained Online Convex Optimization**      2025
**Subhamon Supantha**, A. Sinha
Preprint, arxiv:2510.01867

**Projection-free Algorithms for Online Convex Optimization with Adversarial Constraints**      2025
D. Sarkar, A. Chakrabartty, **Subhamon Supantha**, P. Dey, A. Sinha
Preprint, arxiv:2501.16919

**A Dynamic Agent Based Model of the Real Economy**      2024
**Subhamon Supantha**, N. K. Sharma
*Accepted(presentation), International Conference on Computing in Economics and Finance (2025)*

## Ongoing Projects

**Generalization of Neural Feature Collapse**      2025
*Joint work with Prof. Parthe Pandit (IIT Bombay) and Prof. Akshay Rangamani (NJIT)*
Understanding terminal phase training in certain conditions commonly arising in modern architectures

**Feature learning in equivariant networks**      2025
*Joint work with Prof. Parthe Pandit (IIT Bombay) and Prof. KV Subrahmanyam (CMI)*
Characterizing the feature maps learned by a group equivariant convolutional network

**Online Convex Optimization with Adversarial Constraints**      2025
*Joint work with Prof. Abhishek Sinha (TIFR, Mumbai)*
We have found an algorithm which beats the SOTA dynamic benchmarks in the COCO problem (see in publication and preprints) . Currently attempting to establish and match the minimax lower bound.

**Best Arm Identification in Bandits under constraints**      2025
*Joint work with Prof. Debabrota Basu (INRIA, France)*
We venture further from linear constraints. Having discovered a lower bound, currently designing algorithms to match it.

## Industry Experience

**Kantar IMRB**                                                    **June, 2023–January, 2024**
*Associate Research Manager*
Built practical Bayesian MCMC forecasting models in R/Python. Responsible for streamlining and automating various process pipelines resulting in reduction of time on task from days to hours. Also designed surveys (conjoint analysis) and pricing models.

## Scholarships

**2023–2025**: Full tuition waiver and monthly stipend based on academic performance at CMI for the MSc Computer Science program.

## Reading Projects

**Dec–May 2024**: **A survey on the Neural Tangent Kernel: Theory, Application and Background**: MSc thesis at CMI under Prof. KV Subrahmanyam.

**Aug–Dec 2023**: **Large Language Models**: CMI Reading Group with Prof. KV Subrahmanyam, Prof. Pranabendu Mishra, Prof. Madhavan Mukund. Presented papers like *Attention is All You Need*, *Emergent World Representations*.

## Internships

**Tata Institute of Fundamental Research**                                          **Mumbai**
*Summer Research Project, Supervisor: Dr. Abhishek Sinha*                          *May–Aug 2024*
Carried out theoretical research in Online Convex Optimization.

**Observer Research Foundation**                                                   **Kolkata**
*Research Intern*                                                              *Aug–Oct 2021*
Conducted data analysis of factors pertaining to United Nations SDG Goals. Using time-series, panel, and cross-sectional statistical methods and contributed to real life public policy projects under SDGs, Urban Economics and Environmental Economics.

## Conferences & Workshops

**July 2025**: JTG/IEEE ITSoc Summer School, IIT Bombay

**Aug 2024**: IndoML Symposium, BITS Pilani Goa

**Jul 2024**: Game Theory, Mechanism Design, and AI Symposium, IISc Bangalore

**Dec 2023**: ACM Winter School on Network Science, Ahmedabad University

**Jan 2023**: 57th Annual Conference of The Indian Econometric Society, University of Hyderabad

## Extra-Curricular Activities

**2019–20**: Assistant director for feature film *#Homecoming*, available for streaming on SonyLiv.

**2017–18**: Actor, Jadavpur University Drama Club and youth theater group *VerseOn*.

**2011**: Represented Videocon School of Cricket at U-14 CAB Tournament (BCCI state level).