Abhishek Basu

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Masdar City, Abu Dhabi, United Arab Emirates

Google Scholar / ResearchGate

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RESEARCH INTERESTS

I work at the intersection of **Computer Vision**, **Biometrics**, and **Privacy**, developing models and methods to prevent the misuse of personal data in identity-aware applications. Broadly, I aim to develop AI systems that are **secure**, **efficient**, and reliably applicable to **real-world settings**.

EDUCATION

Mohamed Bin Zayed University of Artificial Intelligence Abu Dhabi, United Arab Emirates
Master of Science in Computer Vision *Aug 2023 – May 2025*
- CGPA: 3.65/4
- Thesis: Calibration-Aware Prompt Learning for Vision-Language Models (BMVC'25)
- Supervisors: Prof. Muhammad Haris Khan and Prof. Karthik Nandakumar
- Awarded full-ride scholarship worth ∼150,000 USD

National Institute of Technology Durgapur Durgapur, West Bengal, India
Bachelor of Technology in Computer Science and Engineering *July 2019 – May 2023*
- CGPA: 8.46/10; First Class with Distinction

PUBLICATIONS

* indicates equal first author contribution.

Calibration and Reliability in Vision-Language Models

1. **CalibPrompt: Calibration-Aware Prompt Learning for Medical Vision-Language Models.**
   Abhishek Basu, Fahad Shamshad, Ashshak Sharifdeen, Karthik Nandakumar, Muhammad Haris Khan.
   BMVC 2025.

Explainability and Ensemble Learning in Medical Imaging

3. **MENet: A Mitscherlich Function-based Ensemble of CNN Models for Lung Cancer Classification using CT Scans**
   Surya Majumdar*, Nandita Gautam*, **Abhishek Basu***, Arup Sau*, Zong Woo Geem, Ram Sarkar.
   PLOS One, 2024.

4. **Lung Cancer Detection from Thoracic CT Scans using an Ensemble of Deep Learning Models**
   Nandita Gautam*, **Abhishek Basu***, Ram Sarkar.
   Neural Computing and Applications (Springer), 2024.

5. **An Ensemble of UNet Frameworks for Lung Nodule Segmentation** [Oral]
   Nandita Gautam, **Abhishek Basu**, Dmitry Kaplun, Ram Sarkar.
   APAMCS 2022, Stavropol, Russia. Also in *Lecture Notes in Networks and Systems, Springer.*

Generalization and Cross-Domain Safety in Healthcare AI

7. **XDT-CXR: Investigating Cross-Disease Transferability in Zero-Shot Binary Classification of Chest X-Rays**
   Umaima Rahman, **Abhishek Basu**, Muhammad Uzair Khattak, Aniq Ur Rahman.
   MLHC 2024.

Academic Experience

Mohamed bin Zayed University of Artificial Intelligence (MBZUAI)

Research Engineer I, Abu Dhabi, UAE   *July 2025 – Present*

- Working full-time at MBZUAI under the supervision of **Prof. Karthik Nandakumar** (SPriNT AI Lab) and co-supervision of **Prof. Praneeth Vepakomma** (CERT Lab).
- Focus: Building trustworthy and privacy-preserving AI systems at the intersection of Vision, Language, and Security.

Jadavpur University

Research Intern under **Prof. Ram Sarkar**   *June 2022 – Aug 2023*

- Contributions
  1. Co-authored four peer-reviewed publications (listed under **Publications** section) in reputable journals and conferences.
  2. Guided an intern through the complete research lifecycle, from project conception to successful publication in a peer-reviewed journal.

Work Experience

Shinobi Security

AI Intern, Dubai Internet City, UAE   *April 2024 – June 2024*

- Architected and implemented a multi-agent system using Claude/GPT APIs to translate natural language into KQL queries, achieving **90% accuracy** in Azure log analysis and security monitoring.
- Developed specialized agents for table selection, column mapping, and query generation, with robust error handling and user feedback loop.
- Built end-to-end pipeline integrating Azure Monitor API and Log Analytics, enabling non-technical users to investigate security incidents through natural language.

Samsung R&D Institute India-Bangalore

Research Intern, Knox AI Lab   *Feb 2022 – Aug 2022*

- Project: User-specific Training and Tuning of ONNX Model using NNTrainer.
- Tech Stack: C++, Python, ONNX, NNTrainer, TensorFlow 2.0.

Academic Achievements

- **Travel Grant (BMVC 2025)**: Awarded a **$4500 travel grant** to attend and present at the **British Machine Vision Conference (BMVC 2025)** in Sheffield, UK. *(2025)*

- **Travel Grant (CISPA–ELLIS Summer School 2025)**: Awarded a **€1000 travel grant** to attend the **CISPA–ELLIS Summer School 2025** in Saarbrücken, Germany, on *Trustworthy AI, Secure and Safe Foundation Models*, where I presented my Master's thesis work. *(2025)*

- **AI-driven Drug Discovery Hackathon**: Secured 2nd place at the hackathon organized by Insilico Medicine, Abu Dhabi, winning **AED 4000 (∼USD 1,090)**. *(2024)*

- **MBZUAI Scholarship**: Awarded a **fully funded Master's scholarship** covering tuition, accommodation, health insurance, travel, and a **monthly stipend of $4,220**, totaling approximately $150,000. *(2023–2025)*

- **Top B.Tech Project**: Final year project ranked among the **Top 2 out of 184 projects** in the Computer Science department at NIT Durgapur. *(2023)*

- **Google ML Bootcamp**: Selected among the **top 2%** of applicants for the inaugural Google ML Bootcamp, a 4-month intensive program fully funded by Google. *(2022)*

- **Sastra Pratibha Contest**: Achieved **3rd position 'A'** in the Senior category of the Sastra Pratibha Contest, organized by Science India Forum, UAE. *(2018)*

- **Math Olympiad**: Awarded Certificate of Distinction in Mathematics in the **19th All India Mathematics and Science Olympiad**. *(2016)*

Academic Services

Teaching Assistant

1. **Mathematical Foundations of Artificial Intelligence (MTH701)**
   Assisted Prof. Karthik Nandakumar and Prof. Mingming Gong
   Fall 2024, MBZUAI

2. **Probabilistic and Statistical Inference (ML703)**
   Assisted Prof. Tongliang Liu, Prof. Mingming Gong, Prof. Maxim Panov, and Prof. Kun Zhang
   Spring 2025, MBZUAI

Conference Volunteering

1. Program Volunteer — **IEEE International Conference on Data Mining (ICDM)**, Abu Dhabi.

2. Program Volunteer — **31st International Conference on Computational Linguistics (COLING)**, Abu Dhabi.

Position of Responsibilities

- **Career Services Ambassador:** Represented Career Services, providing career development guidance to graduate students and facilitating career-focused workshops and one-on-one coaching sessions. Awarded Outstanding Employability Volunteer Award, for services rendered during my Master's program (2023–2025).

- **Sadeeq (Arabic for Friend):** Helped new students from diverse nationalities adjust to university and academic life, especially those leaving home for the first time. (Fall 2024)

Leadership Roles

- **Founding President of the Computer Science and Engineering Student's Society (CSS):** Founded and led a team of 39 people and managed activities for a department of 1000 students.

- **Secretary at IEEE Computer Society Student Chapter NIT Durgapur:** Collaborated with IEEE Computer Society, IEEE Student Branch Jadavpur University, other IEEE Societies, and industries to conduct the **IEEE TechX Congress 2022**, the first of its kind in the IEEE Kolkata Section.

- **Class Representative of the Computer Science and Engineering Department:** Elected to represent the largest department consisting of 184 students.

Technical Skills

- **Languages:** Python, C, C++, MATLAB, SQL, HTML/CSS
- **Frameworks:** PyTorch, TensorFlow, Keras, Scikit-Learn, OpenCV, HuggingFace, Flask
- **Developer Tools:** Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, Linux

References

Prof. Karthik Nandakumar
Affiliate Associate Professor, MBZUAI
Associate Professor, Michigan State University (MSU)

Prof. Muhammad Haris Khan
Assistant Professor, MBZUAI

Prof. Praneeth Vepakomma
Visiting Assistant Professor, MIT
Assistant Professor, MBZUAI

Prof. Kun Zhang
Professor of Machine Learning, MBZUAI
Affiliate Faculty, CMU

Prof. Ram Sarkar
Professor, Jadavpur University

Prof. Subrata Nandi
Professor and Former HoD, NIT Durgapur

Prof. Debashis Mitra
Associate Professor, NIT Durgapur