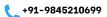
# DYUTIDEEPTA BANERJEE

### **Deep Tech Professional**



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https://github.com/DyutideeptaB

https://www.linkedin.com/in/dyutideepta-banerjee/

### SUMMARY

Deep Tech professional with a strong foundation in Physics, specialising in image & data interpretation, science-based modelling and advanced analytics. Passionate about creating innovative industrial solutions across sectors, including spacetech, defence, healthcare, robotics, automotive, new energy and material sciences. I combine deep scientific insight and Physics fundamentals with cutting-edge AI, vision & quantum technologies to solve complex, real-world challenges. As a clear communicator, I bring experience in engaging stakeholders across industry & academia - presenting internationally, driving cross-domain discussions, automating workflows, and delivering impactful work to local and global clients.

#### **EXPERIENCE**

### Physics & Data Science Project Associate

#### Spatialty.Al 🔗

m 09/2025 - Present Pangalore, India

- Contributing to R&D in Physics-based modeling, AI, and computer vision for projects across defence, aerospace, construction, energy, and material science.
- Developing foundational models and solutions using Python scripting tailored to the company's interdisciplinary project needs.

#### Cross-Platform Solutions Specialist - Contractor

#### Johnson & Johnson 🔗

**6** 06/2024 - 08/2025 Pangalore, India

- Collaborated with global stakeholders to define business solutions, conduct cross-platform quality checks, and deliver actionable improvements for the product lookup system.
- Managed sprint cycles with international teams across time zones, streamlining agile processes to reduce fix turnaround by 40%.

#### Artificial Intelligence Research Intern

**Ongoing Project Link** 

#### MathWorks: Customer Success Engineering Group @

**=** 11/2022 - 05/2023 Munich, Germany

- Established a standardised pipeline for multispectral and Digital Terrain Model satellite imagery to enable morphological analysis.
- Developed a MATLAB AI application for spectral image preprocessing, creating gold-standard training data through segmentation, enhancement, and annotation.
- Adapted CNN models with deep and transfer learning, achieving over 95% prediction accuracy.
- Collaborated with international teams at Max Planck Institute and University of Padova, enabling cross-domain applications in geospatial, medical, and manufacturing sectors.
- Continuing research collaboration for publication.

### **Visiting Fellow**

### International Center for Theoretical Sciences Tata Institute of Fundamental Research &

**m** 07/2019 - 04/2020 Pangalore, India

- Developed Physics-based simulation models for turbulent flows in Newtonian fluid dynamics systems for Reynolds' number limits
- Established an experimental mechanism for validating drag models and conducted motion analysis using videographic data
- Designed goodes and 3D printed lab apparatus for experiments

#### **Automation Specialist - Freelance**

### Toriox PRJ Packaging Pvt Ltd 🔗

**1** 09/2024 - 12/2024 Pangalore, India

• Designed and deployed edge-based Python modules for real-time inventory management, reducing manual intervention by 80% in low-latency production environments.

### **EDUCATION**

## **MSc Physics of Data**

#### University of Padua &

10/2020 - 04/2024 Padua, Italy (2022/23 foreign exchange - university pause)

### BSc (Hons) Physics, minor in Data Science

Azim Premji University &

**=** 08/2016 - 08/2019

Pangalore, India

### **KEY ACHIEVEMENTS**

Winner of ERODEM Research Grant 2024

Italian Ministry's funding for conservation of heritage sites by carbon dating using ML models

Winner of Erasmus + Traineeship Grant 2022

Poster Publication at 11th European Lunar Symposium 2023 **View Poster** 

AI-based detection of Lunar Sinuous rilles: A comparison with manual detection methods

First-authored Manuscript under review by Elsevier's International Journal of Applied Earth Observation and Geoinformation

Focused on modular vision pipelines for multidataset analysis in Lunar data. Co-authored by Max Planck Institute, University of Padua & MathWorks.

### CERTIFICATIONS

Finance for Non-finance Professionals 2025 **Rice University by Coursera Certificate** 

**Deep Learning Onramp** 2023 **MathWorks Certificate** 

**Introduction to Cosmology** 2017 M. P. Birla Institute of Fundamental Research

**Programming with Python** University of Michigan by Coursera **Certificate** 

**R for Data Science** 2016 Miscrosoft by edX **Certificate** 

### **INVITED SPEAKER**

#### Seminar Speaker for the Applicability of AI in Planetary Feature Detections

Max Planck Institute for Solar System Research ∅

**5** 05/2023

• Göttingen, Germany

Scientific Ehibitor for Buffon's Mathematical Model

Indian Institute of Science

**02/2020** 

O Bangalore, India

#### SELECT TECHNICAL CONTRIBUTIONS

#### Encrypted QR generator with Decryption Algorithm Project Link

Built an open source project, a Python-based toolkit for encrypted QR code generation with data created with Tkinter GUI, enhancing data security with Fernet-based decryption system.

### Built an AI-Powered Ed-tech Platform for NASA Space Apps Hackathon 2024 <u>View Platform</u>

Created automated data pipelines for acquiring NASA exoplanetary datasets

Deployed NLP/LLM modules like Llama for improved data processing and tailored course material based on user feedback

#### Studied Bristle Bots as a minimal model of directed motion

Designed & developed 3D printed miniaturised bots having bristle-like legs for movement, with an electromotive light-sensing circuit. Conducted experimental analysis and validation for the bot's motion exposed to an environmental gradient Formalised theory for design adept towards directed motion to initialise study for collective dynamic systems

### **VOLUNTEERING & LEADERSHIP**

Academic Coach for graduate-level Physics & Mathematics

Classgap by GoStudent 🔗

■ 01/2024 - 12/2024 **Q** Global

**Communication Coach** 

Center for Linguistics, University of Padua 🔗

■ 12/2021 - 12/2022 Padua, Italy

**Certified Peer Counsellor for Mental Wellness** 

Azim Premji University 🔗

■ 07/2017 - 04/2019 **Q** Bangalore, India

Special-ed Teacher Volunteer for the underprivileged at an NGO

Parikrma Humanity Foundation 🔗

### **SKILLS**

#### Physics & Computational Modelling

Strong foundation in Physical sciences with expertise in Al for simulations, algorithm development and image analysis

#### Al & Data Science

Proficient in Deep Learning Frameworks,
Predictive Analytics, Data Wrangling, Data
processing, Statistical Analysis, Data
interpretation, Computer Vision, Model
Deployment, Scripting, Automation, Technical
Documentation and Quality Analysis

#### Programming & Tools

Skilled in Python, MATLAB, R, TeX, CAD, QGIS, SQL, MS Office, Git, Bash, Jira, learning C++

#### Soft Skills

Excellent communication, public speaking, presentation and team leadership skills, financial and business acumen

## **LANGUAGES**

