DYUTIDEEPTA BANERJEE

From Physics to Product | Applied AI, Imaging & System Optimization

📞 +91-9845210699　✉️ dyutideepta.banerjee@gmail.com　in https://www.linkedin.com/in/dyutideepta-banerjee/

📍 Bangalore, India, 560077　 https://github.com/DyutideeptaB　🌐 https://dyutideepta.is-a.dev

AI/ML professional with strong foundation of Physics, Data Science, Advanced Analytics and Programming languages. Specializing in developing and delivering solutions based on Physics based Foundation Models, decision intelligence and automation that provide Analysis, Inference, Prediction and Prescription, collaborating across teams and application verticals, simplifying and resolving complex problems.

WORK EXPERIENCE

Product & Workflow Analyst (UX, QA & Stakeholder Solutions) - Contracted to Johnson & Johnson 🔗
Bangalore, India | Jan 2025 - Present
Trainee - Software Intergration Services Inc. (Sisincorp) 🔗
Bangalore, India | Jun 2024 - Dec 2025

- Maintained Johnson & Johnson's global product lookup system—including web, mobile apps, and internal product database, **integrated with CDL and GS1 resolver** for precise product traceability.
- Collaborated with **international stakeholders and end users across time zones** to resolve feature requests and production issues via **Jira**, Teams, and direct support.
- Leveraged JQL to triage and monitor issue trends; translated business needs into **Figma wireframes** and developer-ready specifications.
- **Streamlined workflows and led manual QA testing**, identifying and resolving critical bugs, reducing fix turnaround by **40%**.
- Shared updates with external partner companies through **Power BI dashboards**, supporting seamless **analytics integration and cross-company data alignment**.

Automation & UI Specialist: Batch QR Code System (Freelance)- Toriox PRJ Packaging Pvt Ltd 🔗
Bangalore, India | Sep 2024 - Dec 2024

- Created Python scripts for **real-time data input, storage, and retrieval**, improving efficiency and **reducing manual effort by 80%**.
- Developed QR code generation and data screening **modules integrated into the client's software**.
- Enhanced data security and processing speed with **edge-based solutions**.
- Delivered **reliable, production-ready code**, earning strong client satisfaction.

Artificial Intelligence Intern - MathWorks: Customer Success Engineering Group 🔗 **Project link:**
Munich, Germany | Nov 2022 - May 2023

- Designed and developed a MATLAB **AI application** with custom functions for efficient **multispectral image preprocessing and automated feature extraction**.
- Trained **CNN** models from scratch, achieving **>95% classification accuracy**, surpassing benchmark AI systems.
- Established a **gold-standard dataset pipeline, increasing model training efficiency by 40%** and enabling **cross-domain applications** in geospatial, medical and manufacturing sectors.
- Partnered with international research teams at the ***Max Planck Institute for Solar System Research*** (MPI 🔗), leveraging expertise in **Physics and AI-driven computer vision** in planetary science.

Visiting Fellow - International Center for Theoretical Sciences Tata Institute of Fundamental Research: Fluid Mechanics Laboratory 🔗
Bangalore, India | Jul 2019 - Apr 2020

- Developed **Physics-based computational models**, applicable to AI-driven simulations in robotics, aerodynamics and turbulent mechanics.
- Conducted experimental validation of Newtonian fluid drag models, improving **prediction accuracy by 90%**.
- **Designed** gcodes and **3D printed lab apparatus** for experimental work.

EDUCATION

MSc in Physics of Data 🔗
University of Padua, Padua, Italy | Oct 2020 - Apr 2024
Dissertation: AI-based detection of Lunar Sinuous rilles: A comparison with manual detection methods
Select Projects:

- AI in Medicine: Paediatric bone age estimation using X-ray datasets
- Network Science for Smart Governance: Models to analyse global trends from social media

BSc (Hons) in Physics & minor in Data Science 🔗
Azim Premji University, Bangalore, India | Aug 2016 – Aug 2019
  Dissertation: Bristle Bots as a Minimal Model of Directed Motion
  - Developed 3D-printed adaptive microbots for real-time motion analysis

SELECTED TECHNICAL CONTRIBUTIONS

Encrypted QR generator with Decryption Algorithm, *Bangalore, India | May 2025*
A Python-based toolkit for encrypted QR code generation, secure data encoding, and visual data screening. Includes a Tkinter GUI for input, QR generation with/without background designs, and a Fernet-based decryption system. Ideal for product packaging, secure tagging, and data tracking workflows.

Celestial Quest: AI-Powered Ed-tech Platform for Astrophysics, *Ahmedabad, India | Oct 2024* 🔗
Developed Python scripts for automated NASA data scraping, integrated with LLaMA-based NLP/LLM pipelines. Built UI templates and exported HTML modules for email notifications, designed the platform logo, and contributed to public deployment using AWS for scalable, real-time access. This was a team project for the ***NASA Space Apps Hackathon 2024***. 🔗

AWARDS & CERTIFICATIONS

- **Finance for Non-Finance Professionals** | *Rice University by Coursera (2025)* 🔗
- **Deep Learning Onramp Certification** | *MathWorks (2023)* 🔗
- **Introduction to Cosmology Certification** | *M.P. Birla Institute of Fundamental Research (2017)*
- Winner of **ERODEM Research Grant** | *University of Padua (2024)*
- Winner of **Erasmus Plus Traineeship Grant** | *Erasmus+ (2022)*

SKILLS

Core Competencies:
- **Physics & Computational Modelling:** Strong foundation in Physical sciences with expertise in simulations, hyperspectral imaging, and algorithm development
- **AI & Data Science:** Deep Learning, Predictive Analytics, Model Deployment, Statistical Modelling, Data Wrangling, Computer Vision, Data Processing, Machine Learning frameworks (TensorFlow, PyTorch)
- **Programming & Tools:** Python, MATLAB, R, Pandas, Spark, Power BI, MS Office, QGIS, Tkinter, CAD
- **Version Control & Agile Methodologies:** Git, Bash, Jira, Scrum
- **Design & Visualisation:** Figma, Canva
- **Financial & Business Acumen**

Soft Skills:
Public Speaking, Team Leadership, Cross-Disciplinary Collaboration

Languages:
  English (Native), Hindi (Native), Bengali (Mother Tongue), Italian (Beginner) & German (Beginner)

INVITED TALKS & TECHNICAL PRESENTATIONS

Conference Speaker, 11th European Lunar Symposium, *Padua, Italy | Jul 2023* 🔗
"*AI for Lunar remote sensing data analysis*"

Seminar Speaker, Max Planck Institute for Solar System Research, *Göttingen, Germany | May 2023* 🔗
"*Applicability of AI in feature detection using hyperspectral satellite imagery*"

Scientific Presenter, Indian Institute of Science (IISC), *Bangalore, India| Feb 2020* 🔗
  "*Experimental presentation for Buffon's Mathematical Model*"

VOLUNTEERING, OUTREACH & LEADERSHIP

Academic Coach for graduate-level Physics & Mathematics | *Classgap by GoStudent (Jan 2024 – Dec 2024)* 🔗
Communication Coach | *Center for Linguistics, University of Padua, Italy (Dec 2021 – Jan 2022)* 🔗
Certified Peer Counsellor for Mental Health | *Azim Premji University, Bangalore, India (Jul 2017 – Apr 2019)* 🔗
Special-ed teacher for the underprivileged at NGO | *Parikrma Humanity Foundations, Bangalore, India (Jul 2017 – Dec 2017)* 🔗