Anand Anamika

PhD Candidate, The University of Tokyo

Numerical Simulation Lab

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General Research Building, Kashiwa Research Complex, Chiba, Japan

Education

- **Ph.D. Sustainability Science**
  Graduate School of Frontier Sciences, The University of Tokyo
  Thesis: Agricultural burn area dynamics and its effect on air quality — a case study of Punjab, India.
  October 2021 – Present
- **M.S. Environmental Science (2018–2020)**
  Banaras Hindu University, India
  CGPA: 8.31/10
- **B.S. Life Science (2015–2018)**
  Miranda House, University of Delhi, India
  CGPA: 8.03/10

Experience

- **Project Research Assistant (*December, 2021 – March, 2024)***
  Research Institute of Humanities and Nature, Nara, Japan
  December, 2021 – March, 2024
  AAKASH — ***An International project on Clean Air, Public Health & Sustainable Agriculture***
  Remote sensing & geospatial ML: *Developed deep-learning methods to derive high-resolution emissions proxies in data-scarce regions from Sentinel-2/MODIS/VIIRS.*
  Modeling & analysis: *Supported WRF-Chem emissions preparation and PM2.5 scenario evaluation with the modeling team.*
- **Doctoral Student *(October 2021 – April, 2025)***
  Division of Climate change system research, The University of Tokyo
  Project: *Domain adaptation of deep learning segmentation model to capture burn area dynamics in data-scarce region*
  Highlights:
  Cross-region transfer learning: *Trained on Portugal and fine-tuned to Punjab, achieving robust generalization across differing agro-ecologies and acquisition conditions.*
  Architecture ablations: *Analyzed U-Net variants (attention, width, skip connections, loss functions) to improve boundary fidelity and reduce false positives in narrow, fragmented croplands.*
  Retention: *Designed a staged annotation & data-feeding strategy that speeds adaptation to new domains while retaining source-domain performance.*
- **Senior Peer Communication Coach *(October, 2022–March, 2024)***
  Science Communication Improvement Lab, The University of Tokyo
  (SCIL) ***Program leadership:*** *Co-led the centre; trained & mentored peer coaches in editing, presentation, and collaboration.*

Skills

- **Research Interest**
  EO data integration, deep neural network, GIS, image segmentation, transfer learning, domain adaptation & architecture tuning
- **Soft skills**
  Cross-disciplinary collaboration & Stakeholder communication, Data storytelling, Mentoring facilitation, Project coordination, Public speaking.
  Languages: English (Fluent); Japanese(basic); German(Elementary)
- **Tech literacy**
  Programming: Python (PyTorch, scikit-learn, TensorFlow), Fortran, EO&
  geospatial (xarray, rasterio/GDAL, GeoPandas, GEE), pipelines & scale (NumPy&pandas), GPU (CUDA basics), Docker, git & LaTeX.
  Tools: GEE, QGIS, SNAP, WRF-Chem tooling (NCO, CDO, fire_emis, prep_chem_src)

Publications

- *Anand, A., Imasu, R., Dhaka, S. K., Patra, P. K. (2025). Domain Adaptation and Fine-Tuning of a Deep Learning Segmentation Model of Small Agricultural Burn Area Detection Using High-Resolution Sentinel-2 Observations: A Case Study of Punjab, India. Remote Sensing, 17(6), 974.*
- *Banerjee, T., Shitole, A. S., Mhawish, A., Anand, A., Ranjan, R., Khan, M. F., ... Mall, R. K. (2021). Aerosol climatology over South and Southeast Asia: Aerosol types, vertical profile, and source fields. Journal of Geophysical Research: Atmospheres, 126(6), e2020JD033554.*

Full list: Google Scholar

AWARDS & RECOGNITION

- **MEXT PhD Award**
  To pursue Doctoral Research at The University of Tokyo.
- **Spotlight speaker**
  Potential of student-led strategic initiatives and the transformative power of peer coaching. Global Faculty Development Program, University of Tokyo.
  2023

HOBBIES & INTERESTS

Reading · Cuisine blend · Hatha Yoga · Events