

Yajnavalkya Bandyopadhyay

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Dynamic professional with expertise in Remote Sensing, Data Engineering, AI/ML, and 3D GIS solutions. Skilled in Python, Java, C#, and cutting-edge technologies, driving innovative solutions in engineering and analytics."

Professional Experience

Principal Engineer

Debahuti Tech Private Limited

June 2022–January 2023, May 2023–Present

- Developed Deep Learning models for Oncological Disorder Detection Systems
- Developed Deep Learning models for Satellite Imagery classification and AOI detection
- Developed Software for Urban Planning aided by OSM and Google Maps API
- Developed Python Scripts for easier access and manipulation of Google Earth Engine Data
- Granted 10 Copyrights

Project Associate

Indian Institute of Technology, Roorkee

February 2023 – April 2023

- Developed a system for the generation of CARTO-DEM products using NASA AMES STEREO PIPELINE

Software Architect

Agnyshala Makerlabs Private Limited

February 2020 – July 2020

- Developed a tool using Javascript, JQuery and Node.js, for cognitive improvement of Technical and Artistic drawing.

Junior Software Developer

Rigvaimaniki Technologies Private Limited

August 2019 – January 2020

- Led development for writing device drivers for ESP32 and Arduino backed up Drone UAV using C and Python.

Education

Birla Institute of Technology, Mesra

July 2020 – May 2022

Master's Degree in Remote Sensing (GPA: 8.69/10)

Maulana Abul Kalam Azad University of Technology, West Bengal

August 2014 – May 2018

Bachelor's Degree in Civil Engineering (GPA: 7.7/10)

Skills

- **Language** – C, C#, Java, Python, Javascript
- **Libraries and Tools** – MySQL, Pandas, PySpark, Scikit Learn, Tensorflow, Keras, Seaborn, OpenCV, CUDA, Google Earth Engine
- **Software** – QGIS, Autodesk AutoCAD, Rhinoceros 3D, MATLAB, ArcGIS
- **Analytics techniques**
- **Data modelling**

Books Authored

1. Bandyopadhyay, Y.,2024, **Introduction to Computational Fluid Dynamics**, ISBN – 978-93-341-6535-7
2. Bandyopadhyay, Y.,2024, **Introduction to Machine Learning**, ISBN – 978-93-341-2915-1
3. Bandyopadhyay, Y.,2024, **Introduction to Digital Image Processing**, ISBN – 979-8327368224
4. Bandyopadhyay, Y.,2024, **Introduction to Remote Sensing**, ISBN – 978-9334083163
5. Bandyopadhyay, Y.,2025, **Numerical Solutions of Ordinary and Partial Differential Equations**, ISBN – 979-8305563474

Pre-Prints

1. Bandyopadhyay, Yajnavalkya. "Multiobjective Optimization for Optimal Water Resource Allocation." *EarthArxiv*. <https://doi.org/10.31223/X5B40W>.
2. Bandyopadhyay, Yajnavalkya. 2024. "Advancements in Computer Vision: Exploring Deep Learning and Transformer-based Models for Enhanced Visual Perception." *OSF Preprints*. November 1. doi:10.31219/osf.io/rzsj.
3. Bandyopadhyay, Yajnavalkya. "Lunar Crater Detection Using YOLOv8 Deep Learning." (2024). *EarthArXiv*, DOI – <https://doi.org/10.31223/X5J69V>
4. Yajnavalkya Bandyopadhyay, Barun Das. "Comparison of A Fuzzy Supply Chain Model with learning effect using Evolutionary Algorithms".*Authorea*. DOI: [10.22541/au.170147003.39178826/v1](https://doi.org/10.22541/au.170147003.39178826/v1)
5. Bandyopadhyay, Yajnavalkya and Patel, Nilanchal, "Time Series Analysis of terrain and climatic parameters data retrieved from Terraclimate dataset: A case study in Ranchi and Khunti district, Jharkhand, India", DOI – <https://doi.org/10.31223/X5NH27>

Copyrights

1. Yajnavalkya Bandyopadhyay, "Software to detect Water Bodies in satellite images using Deep Learning", Indian Copyright SW-17796/2023(December 2023)
2. Yajnavalkya Bandyopadhyay, "Software to detect and classify the type of Tumors from MRI images using Convolution Neural Networks and Deep Learning", Indian Copyright, SW-17810/2023 (December 2023)
3. Yajnavalkya Bandyopadhyay, "Software to Mask Settlements in UAV or Satellite Images using Deep Learning" Indian Copyright, SW-17942/2023 (December 2023)
4. Yajnavalkya Bandyopadhyay, "Software to detect and segment Breast Tumors using Ultrasound Images and Deep Learning", Indian Copyright, SW-18163/2024
5. Yajnavalkya Bandyopadhyay, "Software to detect Ocular Disease from Colour Fundus Photography using Deep Learning", Indian Copyright, SW-18228/2024 (January, 2024)
6. Yajnavalkya Bandyopadhyay, Somnath Majumder "Software to develop engineered drawings and computational results for the construction of Gantry Girder and Plate Girders.", Indian Copyright, SW-18468/2024(March, 2024)
7. Yajnavalkya Bandyopadhyay "Geospatial Image exporter in batch for Google Earth Engine data Catalogue" Indian Copyright, SW-18510/2024(March, 2024)
8. Yajnavalkya Bandyopadhyay "Software to export spatial pixel-wise data over time series from Google Earth Engine Data Catalogue" Indian Copyright, SW-18458/2024(March, 2024)
9. Yajnavalkya Bandyopadhyay "Software to evaluate residential connectivity to utilities using a geospatial approach", Indian Copyright, SW-18710/2024(May 2024)
10. Yajnavalkya Bandyopadhyay, "Bone Marrow biopsy cell classification using Convolutional Neural Networks", Indian Copyright, SW-19127/2024(June 2024)
11. Yajnavalkya Bandyopadhyay, "Semantic Segmentation of Building Footprints from Satellite Images using Convolutional Neural Networks", Indian Copyright, SW-19074/2024(June 2024)
12. Yajnavalkya Bandyopadhyay, "AI and Web Application based Poet", Indian Copyright, SW-19745/2024(November 2024)
13. Yajnavalkya Bandyopadhyay, "Deep Learning based Lump identification software from Ultrasound imageries", Indian Copyright, SW-19847/2024(December 2024)

Conference Publications

1. Parthiba Chakraborty, Yajnavalkya Bandyopadhyay and Anuva Chowdhury, **"Mapping the water vulnerability in Peri-Urban areas of Bhubaneswar using Remote Sensing Indices"** Conference – 3rd International Conference on Recent Developments in Sustainable Infrastructure, 2023
2. Yajnavalkya Bandyopadhyay, Parthiba Chakraborty and Anuva Chowdhury, **"A study and trend analysis of environmental air pollution changes in Bhubaneswar with reference to its Peri-Urban area"** Conference – 3rd International Conference on Recent Developments in Sustainable Infrastructure, 2023
3. Bandyopadhyay, Yajnavalkya and Roy, Sandip and Chatterjee, Siddhartha, **"Predicting Stock Market Prices Using Deep Learning by Tensor Flow"** (February 15, 2019). Lecture Notes in Networks and Systems (LNSS, volume – 41), ISBN – 978-981-13-3122-0, Springer, 2019
Conference – ETES 2018 at Asansol Engineering College, 2018
4. Yajnavalkya Bandyopadhyay, Barun Das, **"Comparative Study of an Integrated Supply Chain by NSGA-II and ACO"**
Conference – 3rd Regional Science & Technology Congress, 2018
5. Yajnavalkya Bandyopadhyay, Sanat Kr. Mahato, **"An application of Pentagonal Fuzzy Numbers in Reliability Redundancy Allocation Problem using Genetic Algorithm"**
Conference – 3rd Regional Science & Technology Congress, 2018

Journal Publications

1. Bandyopadhyay, Yajnavalkya. **"Glass Defect Detection and Sorting Using Computational Image Processing."** *International Journal of Emerging Technologies and Innovative Research* 2 (2015): 73-75.
2. Bandyopadhyay, Yajnavalkya. **"Determination of Physical Quality of Rice Using Image Processing."** *International Journal of Emerging Technologies and Innovative Research*, Vol. 3, Issue 8 (August 1, 2016): 70-72. ISSN: 2349-5162.
3. Bandyopadhyay, Yajnavalkya, and T. M. Chowdhury. **"Predicting Bitcoin Price Using Deep Learning."** *Journal of Computer Engineering and Information Technology* 10 (2021).