

Niloy Kumar Kundu

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Date of Birth: 23 July, 1999

Experience

Junior Machine Learning Engineer

Dec 2023 – Present

Nodes Digital Limited

Project: ML Backend Framework Development

- Developed and maintained a **Machine Learning CodeBase Framework** for backend systems, integrating machine learning models with API data flows and ensuring structured, professional outputs.
- Implemented **FastAPI** for API integration, facilitating efficient communication between machine learning models and system components.
- Designed and organized file structures using **Object-Oriented Programming (OOP)** principles, ensuring maintainability and clarity across various project sections.
- **Dockerized the entire project** to create a consistent, portable environment, and successfully handed over the deployment-ready codebase to the software team.
- Collaborated closely with the software team to ensure seamless project transition and integration into the broader system architecture.
- Managed version control using **Git and GitHub**, maintaining a well-organized, versioned codebase for streamlined collaboration and future enhancements.

Project: E-Irrigation

- Conducted literature reviews to understand foundational concepts and **identify the role of machine learning** in the project.
- Collected **real-world images** and performed **manual annotation** for **computer vision** tasks.
- Performed **image preprocessing** and **data augmentation** to enhance the dataset.
- Collaborated with IoT and software teams to capture and process images.
- Developed a **custom regression model** using **attention mechanisms**, achieving strong performance.
- Performed **hyperparameter tuning** using **GridSearchCV**, **Keras-Tuner** to optimize model performance.

Project: E-Fisheries

- Conducted thorough literature reviews to gather necessary information for performing detailed **statistical analyses** and extracting actionable insights from real-world data.
- Explored datasets extensively, performed **feature engineering**, and **selected optimal models** to enhance predictive performance.
- **Collaborated with cross-functional teams (IoT and software)** for data handling and manipulation.
- Performed data annotation to prepare datasets for machine learning models.
- Performed **hyperparameter tuning** using **GridSearchCV**, **Keras-Tuner** to optimize model performance.

Project: In-House PDF Reader Project

- Developed an in-house PDF reader for research purposes.
- Integrated **Llama2 Large Language Model (LLM)** to enhance document processing and analysis capabilities.
- Utilized Streamlit for the front-end and FastAPI for the back-end.

Research Assistant

July 2023 – Jan 2024

United International University

NSCLC Subtype Classification By Analysing Radiomics Features through Machine Learning

- Worked on extracting radiomics features from lung images to detect and classify various types of tumors within abnormal lungs using machine learning algorithms.
- Funded by the **Institute of Advanced Research (IAR)** (BDT. 500,000), affiliated with **Brandenburg University of Applied Sciences, Germany**.

Education

United International University

Jan 2019 - Sept 2023

B.Sc in Computer Science and Engineering

CGPA: 3.87/4.00

Thesis: An Improved Efficient Channel Attention Guided Deep CNN-BiLSTM-based Multi-Lingual Speech Emotion Recognition Framework

Thesis GPA: 4.00/4.00

Publications

Conference Proceedings

- **Published** a conference paper titled “Attention Based Feature Fusion Network for Monkeypox Skin Lesion Detection” at the “26th International Conference on Computer and Information Technology (ICCIT 2023)” [**Scopus indexed**].
Link: <https://tinyurl.com/att-nk>
Author List: Niloy Kumar Kundu et al.
- **Published** a conference paper titled “Implementing Federated Learning based on RainForest Model” at the “8th International Conference for Convergence in Technology 2023” [**Scopus indexed**]. **Link:** tinyurl.com/IFLRFM-NK
Author List: Mainul Karim, Niloy Kumar Kundu et al.

University Projects

Potato Leaf Disease Classification | *Deep Learning, Streamlit, FastAPI*

Fall 2021

- Developed a custom deep learning model to classify potato leaf diseases using a dataset from Kaggle.
- Utilized Streamlit for the frontend and FastAPI for the backend.
- Deployed the application on Hugging Face Spaces.
- **Github Link:** <http://bit.ly/3LhmLwm>

Project on Huggingface <https://bit.ly/4cOT6Xa>

Surplus Food Delivery System | *HTML, CSS, Bootstrap, Python, Django, SQLite*

Spring 2022

- A web-based surplus food marketplace allowing users to conveniently purchase excess food and donate it to individuals or trusted organizations. Bootstrap is used for the front-end and Django is used for the back-end. SQLite is used to store the data. APIs are also used in this project. I hold the role of Team Leader in this group project.
- **Github Link:** tinyurl.com/Nimontron

Multi-Client Chat Application System | *Java, JavaFX, Java Thread & Socket Programming*

Spring 2020

- A LAN-based group chatting application developed using JavaFX, Java Socket Programming, and multi-threading to enable registered users to communicate with each other.
- **Achieved 44 forks and 13 stars on GitHub repository.**
- **Github Link:** <https://bit.ly/9WZ5>

Youtube link: <https://ytube.io/3NH6>

Achievements and Scholarships

Champion at “UIU CSE Project Show”

Fall 2019

Achieved 5th place in the “UIU Coders’ Combat 3.0: Intra-Programming Contest, 2022”

Participated in “BUET Inter-University Programming Contest: 2022.”

Participated in “RUET CSE FEST 2022.”

Participated in “AUST Inter-University Programming Contest: 2022.”

Certification

Supervised Machine Learning: Regression and Classification.

2024

Awarded by DeepLearning.AI.

Intro to Machine Learning.

2023

Awarded by Kaggle.

Skills

Proficient: Python, C/C++, SK-Learn, Tensorflow, Keras, PyTorch, Librosa, Numpy, Pandas, Matplotlib, OpenCV.

Familiar: Data structures and algorithms, Java, HTML5, CSS, JavaScript, PHP, Bootstrap, Django.

Version Control: Git & GitHub.

Database: MySQL, SQLite.

Project Management Tool: Jira, ClickUp

Research Tools & Others: Zotero, Notion, Kaggle, Google Colab, Jupyter Notebook, LaTeX, Overleaf.