



Binay Kumar Pradhan

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SUMMARY

As a Master's student in Artificial Intelligence, I specialize in model compression techniques such as pruning, quantization, and distillation, along with speech recognition models and Reinforcement Learning. My professional expertise, developed through past roles, encompasses MLOps, LLMs, System Design, and end-to-end AI-integrated software development using Python, Bash and Rust. Most recently, as a Research Assistant at Brandenburg University of Technology (BTU) Cottbus-Senftenberg, Germany, I designed experimental interfaces for psycho-physiological studies and created an open-source eye-tracking toolkit for further PassiveBCI experiments, with a strong emphasis on reproducible and ethical AI practices. I am currently seeking AI Engineer positions focused on model optimizations, deployments, latency, throughput, fine-tuning, and reliability. I am available to start immediately.

EXPERIENCE

Research assistant Brandenburg University of Technology, Cottbus-Senftenberg ↗	06/2023 - 03/2025
<ul style="list-style-type: none">Managed MongoDB databases, extracted data from test cases, and developed a visualization tool using PyQt6 while integrating Python, Java, and MATLAB subroutines for seamless cross-language functionality.Optimized supply chain problems, specifically stockyard management time costs, using Reinforcement Learning and constraint programming approaches.Assisted a postdoctoral student with psycho-physiological experiments by developing calibration paradigms and performing data analysis on EEG recordings, resulting in a 50% reduction in calibration and analysis cycles, thereby enhancing participants efficiency in a study.Developed a toolbox for real-time fixation detection and validation of eye-tracker performance as part of mandatory internship requirements for the master's degree; the toolbox is open-source at https://pypi.org/project/pyETA-toolbox/	
AI Data Engineer - II Wolkus Technology Solutions Pvt Ltd ↗	06/2022 - 09/2022
<ul style="list-style-type: none">Implemented ETL processes via SageMaker Pipelines, migrated data marts from GCP to AWS, optimized serverless function latency, and improved observability using Elastic Search.Refactored codebase that decreased Lambda cold-starts by 20%, resulting in a 20% improvement in p95 latency.Created a logger package for team use, open-source at https://pypi.org/project/pylogger-slack/	
Software Engineer - II Myelin Foundry Pvt Ltd ↗	10/2021 - 03/2022
<ul style="list-style-type: none">Developed in-car AI features for facial emotion recognition, hand gesture detection, and object identification using the MediaPipe framework.Implemented model compression techniques to optimize and deploy machine learning models on edge devices within car dashboards, ensuring efficient performance and responsiveness.Deployed models on automotive edge devices to support real-time AI applications.	
Data Science Engineer Utopia India Pvt Ltd ↗	07/2019 - 10/2021
<ul style="list-style-type: none">Developed REST API modules for 4C package, resolved code architecture bottlenecks, integrated on-demand machine learning solutions by the internal ERM team, and delivered visualizations increasing client engagement by 30% in Q1-Q3 2021.Conceptualized and implemented reinforcement learning model for text labeling system with real-time feedback; created proof-of-concept using Transformers (BERT and GPT) architectures for industrial equipment text generation.	

- Engineered regex-based parser with consensus algorithms achieving 85% accuracy in information extraction and 15x efficiency gains over Excel macros; Further designed image matching algorithm for PDF text segmentation, established CI/CD pipelines, implemented logging observability, and configured AWS SPOT instances for load distribution.
- Served on 10-member machine learning team for 4C data-cleaning and standardization project; led requirement specification gathering for the clients, ensuring seamless integration of custom datasets with internal machine learning team.

Machine Learning Intern

Utopia India Pvt Ltd ↗

01/2019 - 07/2019

- Designed text-matching algorithms incorporating pre-trained vectors, custom embeddings, fuzzy logic, and set-relation techniques for enhanced accuracy.
- Developed data-driven algorithms for standardization and structuring of text labels and values.
- Orchestrated the data cleansing tool using Makefile for batch file processing.

Research Intern

Institute of Development and Research in Banking Technology ↗

05/2018 - 07/2018

- Scraped data using Twitter APIs and labeled Hindi and Bengali mixed-script datasets for training.
- Assisted a fellow scholar in solving an NLP problem of part-of-speech tagging for mixed-script social media texts and documented the journal, titled Improving Code-mixed POS Tagging Using Code-mixed Embeddings.

EDUCATION

Artificial Intelligence ↗

Brandenburg University of Technology, Cottbus-Senftenberg, Germany - Masters

10/2022 - Present

- GPA 2.6

- Thesis: On going

Information Technology ↗

International Institute of Information Technology Bhubaneswar - Bachelor of Technology

08/2015 - 06/2019

- GPA 2.8

- Thesis: Unstructured text to Structured text mapping

SKILLS

Reinforcement Learning	Intermediate	Deep Learning	Advanced
Brain Computer Interface	Intermediate	MLOps	Advanced
Cloud Technology	Intermediate	PyTorch	Advanced
Speech Recognition Models	Intermediate	LLMs	Advanced
Model Optimization	Advanced	REST APIs	Advanced
AI System Design	Expert	Python	Expert

LANGUAGES

English

Fluent

German

Basic