

Ikteder Akhand Udoy

AI/ML and Software Engineering

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[LinkedIn](#) | [GitHub](#) | [Portfolio](#) | [Google Scholar](#) | [LPiNS Profile](#)

Summary

PhD researcher and software engineer with experience in applied machine learning, forecasting, data analytics, and AI-driven automation. Strong in Python, SQL, pandas, NumPy, scikit-learn, PyTorch, and reproducible experimentation. Experienced building data pipelines, predictive models, validation workflows, and decision-support tools that turn complex data into reliable business and technical insights.

Education

Boise State University <i>PhD in Computing, Data Science and Machine Learning</i>	Expected Dec 2027
American International University-Bangladesh <i>B.S. in Computer Science and Engineering</i>	2017-2021

Research Experience

Graduate Research Assistant - Boise State University <i>Machine Learning, Data Pipelines, and AI Systems</i>	2023-Present
• Build Python and PyTorch pipelines for data preprocessing, model training, evaluation, experiment orchestration, metric aggregation, and automated reporting. • Develop and compare machine-learning approaches across classification, vision, and language workloads using controlled experiments, ablations, multi-seed evaluations, and error analysis. • Analyze model and system performance using accuracy, precision, recall, F1, perplexity, latency, throughput, memory, and numerical-consistency metrics. • Create reusable workflows for data validation, structured logging, checkpoint analysis, model comparison, and automation to improve reproducibility and reliability.	
Teaching Assistant - Boise State University <i>Algorithms, Data Structures, Digital Systems, and AI Hardware Systems</i>	2023-Present
• Support students in programming, algorithms, debugging, data structures, machine-learning concepts, and problem solving.	

Industry Experience

Software Engineer I - Playense <i>Software and Application Development</i>	Jan 2022-Jun 2023
• Developed, tested, and debugged application features using Python, C++, and Dart while translating requirements into software. • Implemented and integrated software components, investigated technical issues, and adapted solutions to evolving requirements. • Completed and delivered eight client projects through final handoff, meeting customer and project requirements.	

Selected Data Science and AI Projects

- **Demand Forecasting and Inventory Decision Support** - Built a retail time-series forecasting pipeline using lag, rolling, promotion, holiday, and calendar features; compared baselines with RMSE, MAE, and MAPE and translated predictions into inventory-risk support.
- **Customer Churn and Revenue Risk Analytics** - Developed a Python/SQL workflow for cleaning, feature engineering, churn prediction, segmentation, revenue-risk prioritization, model comparison, and dashboard-ready outputs.
- **Dataset Quality and Leakage Detection Platform** - Built a reusable framework for detecting missingness, duplicates, split leakage, label conflicts, outliers, imbalance, and distribution drift across tabular, image, and time-series datasets.

Technical Skills

- **Programming / Data:** Python, SQL, C/C++, Bash, pandas, NumPy, Jupyter
- **Machine Learning:** scikit-learn, XGBoost, PyTorch, TensorFlow, regression, classification, predictive modeling, time-series forecasting, feature engineering
- **Analytics:** Data cleaning, data validation, statistical analysis, model evaluation, ETL-style workflows, structured reporting
- **Automation:** Hugging Face, LLM applications, retrieval workflows, agentic AI, automated experimentation
- **Engineering:** Git/GitHub, Linux, Docker, pytest, FastAPI, REST APIs, SQLite, Streamlit, debugging, automated testing

Selected Publications

- **Multiplier-Free LLM Linear Layers via Weights-Only Power-of-Two QAT** - I. A. Udoy and O. Hassan, IEEE ICAD 2026.
- **Lightweight Binarized Neural Network for Real-Time Sleep Apnea Detection on Edge Hardware** - I. A. Udoy, R. Sharmin, et al., IEEE MeMeA 2025.

Involvement and Leadership

- Mentored two undergraduate researchers at Boise State University, guiding experimentation, implementation, debugging, analysis, and research communication.
- Presented research at IEEE ICAD 2026 and IEEE WMED 2026; IEEE TinyML Workshop Instructor, 2025.