

AYESHA RAHMAN

Software / Machine Learning Engineer



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Work Experience

Freelance Software Developer: Outlier (December 2024 – September 2025)

- Designed and tested AI prompts with a focus on edge cases and quality assurance.
- Built full-stack client websites using HTML, CSS, JavaScript, and Flask.
- Collaborated with teams to develop web tools aligned with client needs.

Equity Research Analyst: Mumbai, India : July 2023 – September 2023

- Built 2 Web Scraping tools (Hotel room pricing with detailed information and Google Flight pricing).
- Analysed travel and hospitality data to support investment decisions; presented comparative research to equity managers.
- Contributed to sectoral analysis and financial trend reporting for potential investment portfolios.

Education

University of Leeds (2021-2024) Meng Computer Science with Artificial Intelligence

University of Leeds (2024-2025) BSc Computer Science with Artificial Intelligence

Projects

Inflation Forecasting with Machine Learning Models

- Developed a forecasting system to predict US inflation (PCE Index) using deep learning models such as N-BEATSx, NHITS and ARDL.
- Responsible for the design, implementation, and evaluation of the N-BEATS model family using Fourier, lag, and momentum-based exogenous features.
- Conducted detailed model validation, applied data preprocessing techniques, and used PyTorch-based forecasting pipelines to achieve low error metrics.
- Collaborated in a 7-member team to assess model performance across multiple horizons and compare with multiple statistical, machine learning and deep learning models.

Digital Health AI for Identifying Autism Spectrum Disorder

- Developed an AI-based digital health application for diagnosing and tracking Autism Spectrum Disorder (ASD) in adults.
- Utilized machine learning models to analyse text and eye-tracking data, with NLP to evaluate social interactions.
- Integrated diagnostic questionnaires and provided personalized feedback based on user inputs.

Classification Model-Online Sentiment to Determine Stock

Objective was to develop a model that could identify positive or negative customer reactions and establish correlations in discretized stock price data. The research aimed to predict stock market movements by analysing sentiment from social media posts and customer reviews, with potential implications for investment decisions.

Bio-Inspired Neural Network Optimisation

- Compared four algorithms (PSO, MPA, LM-IMPA, Adam) on mathematical benchmarks and real-world classification using the Breast Cancer dataset.
- Implemented evolutionary algorithms in Python to optimize neural network weights and architectures without backpropagation.
- Analysed convergence patterns, robustness, and generalization capabilities.
- Demonstrated the effectiveness of LM-IMPA and MPA over gradient-based baselines in black-box optimization tasks.

Wildlife Knowledge Base (Prolog, AI Reasoning)

Built an expert system for zoo management and wildlife governance using Prolog; encoded 68 facts and 71 rules to perform over 130 inferences using logical chaining, negation, and rule-based reasoning.

Video Editing Application

Functional User Interface using C++

Use of AI in Psychological Treatments

Technical Report

Website creation: Shopping website, To-do list website, Sports Management Centre

Certifications

Microsoft Certified: Security, Compliance, and Identity Fundamentals (Microsoft)

Microsoft Certified: Azure AI Identity Fundamentals (Microsoft)

University of Michigan (Coursera online):

Python for Everybody Specialization (Coursera | University of Michigan | online course)

IBM Skills Network (Coursera | IBM Skills Network | online course)

Commonwealth Bank Technology in Banking

Virtual learning program (Forge | Commonwealth Bank Australia | online)

Computational Thinking for Problem Solving (Coursera | University of Pennsylvania | online)

Lyft Back-End Engineering Virtual Experience Program (Forge | Lyft | online course)

Visa Token Service Technology Virtual Experience Program (Forge | Visa | online)

Introduction to Finance: The Basic (Coursera | University of Illinois at Urbana-Champaign | online)

Introduction to Corporate Finance (Coursera | University of Pennsylvania | online)

Fundamentals of Finance (Coursera | University of Pennsylvania | online)

Blockchain Transformations of Financial Services (Coursera | INSEAD | online)

Blockchain, Cryptoassets, Decentralized Finance (Coursera | INSEAD | online)

Foundations of User experience (UX) Design (Coursera | Google | online)

Global Financial Markets and Instruments (Coursera | Rice University | online)

Introduction to Blockchain for Financial Services (Coursera | INSEAD | online)

Skills

Python, C/C++, HTML/CSS, JavaScript, Java, Typescript, SQL, Bash, Prolog, Flask, PyTorch, React, Tensorflow, SWI-Prolog, Hugging face, Docker, Git, VSCode, IntelliJ, Jupyter, Qt, Heroku, AWS, Azure, REST APIs, JSON, Flask CLI, Windows, macOS, Linux, Financial Statement Analysis, Industry Benchmarking, Ratio Analysis, Cash Flow Forecasting, Investment Research, Report Writing, Market Trend Analysis, Equity validation Techniques, Leadership, Team Collaboration, Initiative, Adaptability, Communication, Time Management, Stakeholder Engagement, Problem Solving, critical thinking, attention to detail, Emotional intelligence, Project management.