Avik Pramanick

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Education

M.Tech in Computer Science and Engineering	**7.95/10**
Indian Institute of Technology, Kharagpur	Expected: 2025
B.Tech in Computer Science and Engineering	**8.44/10**
Govt. College of Engineering and Textile Technology, Serampore	2016
Higher Secondary Examination (10+2)	**75.71%**
West Bengal Council of Higher Secondary Education	2011
Secondary Examination (10)	**69.33%**
West Bengal Board of Secondary Education	2009

Relevant Coursework

Subjects: Machine Learning, Deep Learning, Data Analytics, Distributed Systems, Complex Network Theory, High Performance in Computer Architecture

Professional Experience

Assistant Engineer (IT&C), WBSEDCL *[Dec'17 – Jul'23]*

- Analyzed more than 1,00,000 consumers billing and electricity demand data to identify usage patterns and resolve disputes, ensuring accurate bill generation and improved customer satisfaction.
- Performed electricity consumption analysis to identify high-demand areas and developed strategies to increase revenue by 30% in underperforming sections.
- Processed Demand & Collection datasets to generate actionable insights, optimizing collection processes and improving financial reporting accuracy by more than 27%.
- Collaborated with teams to implement data-driven solutions, streamlining workflows and enhancing operational efficiency across departments.

Teaching Assistant, Programming & Data Structures Lab *[Aug'24 - Nov'24]*
Indian Institute of Technology, Kharagpur

- Guided 94 undergraduate students in tutorials and practical coursework, ensuring clarity in data structure concepts.

Projects github.com/Avikg/projects

Classification of TSS Signals to Predict Their Association with hg19 CAGE Peaks *[Apr'24 - Nov'24]*
M.Tech Project — Prof. Pralay Mitra, IIT Kharagpur

- Processed 5,23,329 nucleotide sequences from the hg19 genome and CAGE peak data into labeled datasets with features such as motif types and positions.
- Built a Bi-LSTM model that takes 500 base pair of nucleotide sequences as input and outputs classifications of TSS signals, achieving an F1 Score of 79.43% on the validation set.
- Developed the **TSS Signals Prediction Server**: https://cosmos.iitkgp.ac.in/CAGETag/ and the **DeepPROTECTNeo web server**: https://cosmos.iitkgp.ac.in/DeepPROTECTNeo/ a platform enabling neoepitope discovery for personalized cancer vaccines using whole exome/genome sequencing data..

Replicated Database with Write-Ahead Logging (WAL) *[Feb'24-Apr'24]*
Distributed Systems Project — Prof. Sandip Chakraborty, IIT Kharagpur

- Built a load balancer to support dynamic shard and server management using consistent hashing.
- Engineered a sophisticated load balancing system utilizing consistent hashing techniques, achieving optimal shard distribution and server management that enhanced data processing efficiency by 40% during peak loads.

Automatic Image Captioning Using CNN-RNN and Vision Transformers (ViT) *[Feb'24-Apr'24]*
Deep Learning Term Project — Prof. Pawan Goyal, IIT Kharagpur

- Developed a CNN-based encoder (ResNet50) and LSTM-based decoder for generating captions, achieving ROUGE-L: 0.269, CIDEr: 0.028, SPICE: 0.090.
- Built a ViT-GPT2-based encoder-decoder model, improving metrics to ROUGE-L: 0.397, CIDEr: 0.335, and SPICE: 0.134.

Client-Server Chat Application with FAQ Chatbot *[Mar'24]*
Design Lab Project — Prof. Niloy Ganguly & Prof. Mainack Mondal, IIT Kharagpur

- Designed a client-server chat system supporting up to 10 concurrent clients, with private messaging, active user lists, and chat history management.
- Integrated rule-based FAQ and GPT-2 chatbots for answering queries dynamically.

Skills and Expertise

Programming Languages: Python, C, Java
Frameworks & Libraries: NumPy, Pandas, TensorFlow, PyTorch
Tools & Technologies: Docker, Git, Object-Oriented Programming
Databases: SQL, NoSQL

Accomplishments

- Cracked GATE in CSE twice, achieving AIR 726 in 2017 and AIR 938 in 2023.

Extra-Curricular Activities

- **Stock Market Trading and Investing:** Managed a portfolio of over 50 stocks, achieving greater than 30% annual returns through technical and psychological analysis.