Tokey Tahmid

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RESEARCH OBJECTIVE

Aspiring Artificial Intelligence (AI)/Machine Learning (ML) Researcher seeking to apply research skills and experience at a renowned research facility.

EDUCATION

Master of Science in Computer Science | University of Tennessee, Knoxville | CGPA: 3.66 | Jan 2023 - Dec 2024
Bachelor of Science in Computer Science | BRAC University | CGPA: 3.27 | Jan 2017 - Dec 2021

RESEARCH EXPERIENCE

Innovative Computing Laboratory (ICL) | Graduate Research Assistant | Jan 2023 – Present
- Developed SABATH, a Benchmarking Infrastructure (5 models with GPU support and ~7.1 TB of datasets) for evaluating scientific surrogate AI applications, under the supervision of **Dr. Piotr Luszczek** and **Dr. Mark Gates,** published a paper

National Renewable Energy Laboratory (NREL) | Graduate Intern | May 2024 – Aug 2024
- Demonstrated performance results (speedup of ~2.05X and 80.75% more energy efficiency) for AI applications as an intern for the "Low Precision and Efficient Programming Languages for Sustainable AI" role, under the mentorship of **Dr. Weslley Da Silva Pereira**, published two papers

TENNLab - Neuromorphic Architectures, Learning, Applications | Graduate Research Assistant | May 2023 – Present
- Developed SpikeRL, a scalable and energy-efficient framework (≈22% better and ≈39% more efficient), under the supervision of **Dr. Catherine Schuman**, published, and presented a paper

Chowkosh Limited | Research Assistant | Sep 2021 – Mar 2022
- Developed a Deep Learning based Android Malware Detection model for zero day detection

BRAC UNIVERSITY | Undergraduate Thesis Research | May 2020 – October 2021
- Developed a continuous control AI model with reinforcement learning, published, and presented a paper

Cye Retail Tech Ltd | Full Stack JavaScript Developer Intern | May 2022 - Jul 2022
- Learned JavaScript for frontend and backend web and android applications

PUBLICATIONS

[1] Towards Scalable and Efficient Spiking Reinforcement Learning for Continuous Control Tasks. ICONS2024.
[2] Low Precision for Lower Energy Consumption. ASCR Energy Efficient Workshop 2024.
[3] Low Precision and Efficient Programming Languages for Sustainable AI: Final Report for the Summer Project of 2024. National Renewable Energy Laboratory 2024.
[4] Towards the FAIR Asset Tracking Across Models, Datasets, and Performance Evaluation Scenarios. HPEC2023.
[5] Character animation using reinforcement learning and imitation learning algorithms. ICIEV and icIVPR 2021.

SKILLS

Programming: High proficiency in Python, C, C++; Intermediate in Fortran, Assembly, C#, Java, and Javascript
Research Areas: Machine Learning, Deep Learning, Reinforcement Learning, Large Language Models, Neuromorphic Computing, Spiking Neural Networks, Parallel Computing, Distributed Computing,, High Performance Computing, Mixed Precision Techniques, Benchmarking, and Performance Analysis
Software Frameworks: CUDA, CUDANN, TensorFlow, TensorFlow-probability, Horovod, CMAKE, OpenMPI, MPICH, netCDF, PnetCDF, yaml-cpp, PyTorch, PyTorch Distributed, Scikit-learn, Scipy, Score-P, mpiP, Tau, Perf, PAPI, CodeCarbon
Technical Research Skills: Expertise with system software, scientific applications, low-level libraries, systems programming, performance analysis toolkits; Experienced with generating original research agendas, writing research proposals, solving research problems by implementing creative solutions, manipulating and analyzing complex large data sets for AI research, writing formal reports, technical documentation, research papers, posters, and presentations

ACADEMIC PROJECTS

LLM Chatbot | University of Tennessee, Knoxville | Jan 2024 – May 2024
- Developed a Chatbot for International Students using Google's Gemini API

Operating System Development | University of Tennessee, Knoxville | Aug 2023 – Dec 2023
- Built a fully functional Operating System from scratch using core C/C++

Jailbreak GPT Project | University of Tennessee, Knoxville | Aug 2023 – Dec 2023
- Analyzed Jailbreak-llms dataset (adversarial prompts) for Large Language Models (LLMs) to identify the unethical use of LLMs