Nurul Bin Ibrahim

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Summary

Multi-disciplined **Software Developer / Physicist** specializing in **Machine Learning**, **Data Science**, and **Cloud Development.** Developing practical, automated, cloud-based ML/AI solutions for science and industry.

Career Interests: **Machine Learning Engineer, Applied AI Developer**

Projects

AI Academic Advisor

A web-app integrated with scalable conversational AI systems that provide on-demand academic guidance solutions to educational institutes, providing a platform to help students succeed. (Generative AI, LLMs, RAG, Automation Pipelines)
https://www.unikai.ca/

The Nurul Network

An automated deep-learning solution to decipher the behavior of turbulent systems with its predictive and analytic capability. This provides critical insights into solving turbulence and creates the path to new solutions.
Github Repo

AI mini-projects

DocChatAI, FAQGenius, Natural Language Processing, Speech Recognition, Transformers, RAG, CUDA Neural Networks, AIris, ImageClassification, and more on GitHub.
Github Repo

Experience

Cloud Simulation Developer
September 2023 – Present
Memorial University of Newfoundland
NL, Canada

- Developed **effective** fluid simulation framework to analyze turbulence in cloud environments (*DRAC, Google Cloud*), doubling the efficiency of work for fellow scientists.
- Accelerated data processing and simulation speed of existing projects by 20 times implementing ***CUDA***-based GPU algorithms, resulting in faster and more accurate analysis.
- Boosted performance and deployments through scalable *Docker* and *Kubernetes* **workflows**, enhancing project throughput and efficiency.

Machine Learning Researcher
April 2023 - October 2023
Memorial University of Newfoundland
NL, Canada

- Deciphered complex turbulent jet behavior with a high resolution by developing **machine learning** models *(RNN, CNN, LSTM, PINN, GAN)* in *Tensorflow* using *CUDA* and *Cloud* services.
- Implemented deep-learning techniques in data modeling and statistical analysis, enhancing insights into turbulent systems, and improving computational accuracy by 25%.
- Elevated the understanding of turbulent dynamics for 150+ individuals through the creation of innovative deep-learning tools and publications/presentations at **conferences**.

Acoustic Data Analyst
April 2022 - October 2022
Memorial University of Newfoundland
NL, Canada

- Collaborated to develop **the first** fish detection software for acoustic doppler current profilers (*MATLAB, Python*) which has produced crucial marine life insights, making valuable use of available data.
- Executed exploratory **data analysis**, processing, and visualization (*Pandas, Numpy, Matplotlib*), creating content and validation to disseminate the technology to 100s of scientists.
- Ensured **100%** data accuracy through rigorous quality assurance; optimized research equipment for peak operational **efficiency**.

Skills

- **Languages:** Python, C/C++, MATLAB, JavaScript, HTML/CSS, SQL, Bash, R
- **Frameworks & Libraries:** TensorFlow, PyTorch, Pandas, NumPy, SciPy, Matplotlib, Flask, React.js/Node.js, scikit-learn
- **Tools & Tech:** Git, Linux, Docker, CUDA, APIs (*OpenAI, Google Vertex AI, etc*), LangChain, HuggingFace, MLFlow, MongoDB, MySQL, SLURM, Kubernetes, MPI/OpenMP, GCP, DRAC, GitLab CI

Education

Memorial University of Newfoundland
Graduating April 2024
B.Sc. in Physics (Honors)
GPA = 3.6 /4.0

- Secretary and Ex-Vice President of the Physics and Physical Oceanography Society (PAPOS).
- Funded by the Dr. Hugh J. Anderson Senior Scholarship 2023-2024.

Conferences

Key Presenter -

- **CUPC'2023** hosted by **CAP** in Waterloo (Deep Learning of Turbulence)
- **AUPAC'2023** hosted by **Science Atlantic** in Halifax (Acoustic Fish Detection Solutions)
- **AWC'2022** hosted by **CAA** in St. John's (Acoustic Fish Detection Solutions)