Nurul Bin Ibrahim

St. John's, NL, Canada +1 (709) 697-6559 bibrahim@mun.ca https://github.com/nbibrahim
nurulbibrahim

Summary

Multi-disciplinary **Software Developer/Physicist** specializing in **Machine Learning**, **Data Analysis**, and **Cloud Development.** Founder of an **AI Startup** and developer of scientific and consumer-based solutions on cloud for Data and ML.

Projects

UNIK - AI Academic Advisor
A web-app integrated with scalable AI systems that provide on-demand academic guidance solutions to educational institutes. Backed up by the MCE and currently deployed for MUN students.
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, RAG Implementation, Transformers, CUDA Neural Networks, AIris, ImageClassification, and more on GitHub.
Github Repo

Fish Detection Software
A fish detection solution for acoustic profilers, creating a new and effective tool for marine scientists, and providing innovative ways to make use of existing data. Collaboration with scientists and iMERIT.
https://imerit.ocean.dal.ca/

Experience

Cloud Simulation Developer — **Sept. 2023 – Present**
Memorial University of Newfoundland — NL, Canada

- Leading the development of a fluid simulation software on ***HPC*** clusters (*DRAC, GCP*) with *OpenFOAM*, improving the accuracy and efficiency in analyzing turbulence.
- Developing ***CUDA***-based GPU programs and automating cloud-based workflows with ***Docker*** and Kubernetes, boosting performance and deployment efficiency.
- Conducting thorough data analysis and creating interactive visualization using *Python* and *R*. Implementing performance benchmarking and optimizations with ***Nvidia Nsight*** to refine analysis quality.

Machine Learning Researcher — **Apr. 2023 - Oct. 2023**
Memorial University of Newfoundland — NL, Canada

- Developed and implemented **deep-learning** models *(RNN, CNN, LSTM, PINN, GAN)* utilizing ***CUDA*** and **Cloud** services to successfully decipher and explain the complex behavior of turbulent jets.
- Mastered data modeling and **statistical analysis** to optimize and fine-tune the models, achieving superior insights in turbulent systems; utilized data visualization tools to understand hidden physics.
- Integrated **ML** models with computational fluid dynamics (**CFD**) to deliver key insights through presentations and scientific papers, introducing new tools to the community.

Acoustic Data Analyst — **Apr. 2022 - Oct. 2022**
Memorial University of Newfoundland — NL, Canada

- Collaborated with Ocean Scientists to develop a fish detection **software** for acoustic profilers (*MATLAB, Python*), providing crucial oceanic and marine life **insights**.
- Managed pre-processing, analysis, and visualization of acoustic datasets (*Pandas, Numpy, Matplotlib, Seaborn*), enhancing data clarity and representability.
- 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/GitHub, Linux, Docker, CUDA, OpenAI API, LangChain, HuggingFace, MLFlow, MongoDB, MySQL, SLURM, Kubernetes, MPI/OpenMP, OpenFOAM, GCP, DRAC, GitLab CI, VSCode, JupyterLab

Education

Memorial University of Newfoundland — **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)