Awwab Mahdi

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Summary

Growing researcher and developer, looking to apply experience with machine learning to critical services. Combining a strong foundation in Computer Science and Cybersecurity with skills in document analysis, NLP, and MLOps. See **Skills**, **Projects**, and **Publications** on second page

Experience

Department of National Defence Canada **January 2025 - August 2025**
Data Science Developer 285 Coventry Rd., Ottawa, ON

- Implemented, trained, and tested an optimized 40M parameter document segmentation model(DocStructNet), with 97% accuracy on DocLayNet and PubLayNet datasets
- Co-authored a research paper on the DocStructNet model, submitting it for publication at ICPRAM 2026
- Used the AWS fmeval library, along with ECS, EC2, S3 and SageMaker to deploy a government chatbot with an evaluation pipeline
- Reworked an existing Protected B government application to replace Azure cloud services with local ones, and produced an exhaustive report on its capabilities
- Published separate reports evaluating the Google Sovereign Cloud and AWS Sagemaker AI offerings for DND/CAF development and deployment

Supervised Program for Alignment Research **June 2024 - September 2024**
Student Researcher Remote

- Troubleshooted and debugged the specialized DQN model used in the research, allowing it to run with GPU acceleration
- Integrated Convolutional 2D layers to the DQN enabling it to run on all Atari environments available in gymnasium
- Summarized performance findings on different environments into the final report

IRM Consulting & Advisory **December 2023 - January 2024**
AI Developer Remote

- Finetuned an open source LLM from the Hugging Face model library that enabled GPU costs to be reduced by 90%
- Cleaned CIS Controls data from SCF, SOC II, CMMC and other cybersecurity frameworks
- Used LangChain and HuggingFace embeddings to build a file-based chatbot that was able to effectively interact with clients and respond to queries

Education

Carleton University **September 2021 - December 2025**
Bachelors of Computer Science Cybersecurity Stream

Relevant Coursework: Intro to Statistical Modelling I, Operating Systems, Object-Oriented Software Engineering, Applied Cryptography and Authentication, The Software Economy and Project Management, Intro to Reinforcement Learning, Intro to Machine Learning, Multiagent Systems, Data Science Seminar, Principles of Computer Networking, Human-Computer Interaction

Projects

Reversi RL Algorithm Testbed **September 2023 - December 2023**

https://github.com/obliviance/RL-reversi

- Created a reinforcement learning environment using Farama Gymnasium for the game of Reversi(similar to Go)
- Implemented reinforcement learning algorithms, including Deep Q Network, Deep SARSA, Proximal Policy Optimization, and Monte Carlo Tree Search
- Evaluated the algorithms against each other and prepared a report summarizing findings

Gymnasium, Python, Reinforcement Learning, LaTeX

Publications

DocStructNet: A Foundational Model for Semantic Segmentation of Complex Document Layouts **September 2025**

Preprint (ICPRAM 2026)

Skills

Programming Languages

Python, Bash, JavaScript, C#, Java, C++, C, SQL

Developer Software

Git, Docker, Wireshark, Figma, WordPress, Unity

ML Technologies

PyTorch, Keras, TensorFlow, Nvidia Triton Server, LangChain

Languages

English ●●●●●

French ●●●●○

Urdu ●●○○○