Nolan Kurylo

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Software Engineer specialized in Machine Learning with 3+ years of experience in Python and C++. 3+ years deploying scalable applications and ML models on AWS under microservices architecture. 3+ years leading software developers in Agile and Scrum based environments.

Education

Bachelor of Software Engineering (Co-op - BSEng)   **University of Victoria**
GPA – 3.9/4.0 (8.3/9.0)   Sept. 2017 – Aug. 2022
Specialization in Machine Learning, Artificial Intelligence, and Data Mining and Analysis

Skills

- **Programming Languages –** Python, C, C++, Java, Javascript
- **Big Data–** Apache PySpark, Databricks, Hadoop
- **ML Tools –** TensorFlow, Keras, PyTorch, Scikit-Learn, HuggingFace, Pandas, NumPy, Matplotlib
- **Cloud Computing –** AWS (Cloud Practitioner); Google Colab GPU/TPU training
- **Other –** Docker, Git, Linux/Unix, Jenkins, OOP, data structures and algorithms, Kafka, Redis
- **Workplace –** Agile, Scrum, Kanban, Jira, Confluence, Wekan

Professional Experience

Data Science Software Engineer II – Wood Mackenzie
September 2022 – Current | Calgary, AB

- Building and automating machine learning pipelines through AWS and Databricks (PySpark)
- Managing 12 software engineers developing web scraping platform for global oil & gas production
- Big Data on Databricks; improving data cleaning process by removing 40% of redundant data
- Reducing infrastructure cost on AWS by 30%; converting monolith to microservices architecture

Machine Learning Engineer – Salyx Medical
January 2022 – September 2022 | Victoria, BC

- Built a medical-grade machine learning application to predict arterial blood pressure (ABP). Signal processing and feature extraction of patient photoplethysmogram (PPG) recorded signal
- Achieving Systolic MAE of 4.5 mmHg and Diastolic MAE of 3.1 mmHg (same error range as cuff)
- Deployed as a microservice on AWS Lambda for maximum usability and interoperability

AI/ML Engineering Intern – Convergence Concepts Inc
August 2021 – January 2022 | Vancouver, BC

- Developed an enterprise-level ML application to identify relevant content on webpages, using a multi-channel neural network: metadata, embedding layer and an NLP BERT transformer
- Achieved proficient 90% validation F1 results, trained on over 100,000 examples

- Communicating with clients to translate business requirements and understand data sources
- Deployed high-quality predictive models; used by 10,000+ merchants and publishers

Software Engineering Team Lead – Inventu Research
September 2020 – August 2021 | Victoria, BC
- Led 10 developers amongst embedded electronics, web, and mobile app departments, mentoring in software design and collaborating to help create solutions for a userbase of nearly 1000
- Met 100% of project milestones through leading weekly meetings and organizing technical design
- Designed CI/CD architecture using pipelines and branching strategies for automation of distributed systems
- Applying Test Driven Development and Agile Software Development Life Cycle to optimize workflow by 50%

Project Experience
- **AWS Day Trading System –** A distributed system via various AWS EC2 instances, secured in a VPC. Applying software scalability through an application load balancer and auto instance scaling.
- **Duck Hunt AI –** Applying transfer learning via ResNet, MobileNet and YOLO for object detection on a custom dataset to shoot animated ducks in varying sceneries. Achieved 0.95 mAP with YOLO model.
- **AI MNIST Pipeline -** Developed an articulate ML life cycle with a user interface: data acquisition, EDA, preprocessing, model training, and deployment. Achieved 0.03 categorical cross-entropy loss
- **IMDb Rating Prediction System -** Used Neural Networks, Decision Trees and Random Forests to predict movie ratings on a scale from 0 to 10 with a regression MAE value of 0.68. Involved EDA, data processing and modeling of Kaggle datasets
- **Machine Learning Models Exploration –** Implemented Perceptron, ID3 Decision Tree, K-Means Clustering, and Naïve-Bayes algorithms from scratch to evaluate their performance/ metrics and to investigate the reliability with their corresponding ML library functions

Certifications
- Databricks Accredited Generative AI Fundementals   2023
- AWS Certified Cloud Practitioner   2022

Accomplishments
- Engineers and Geoscientists BC Achievement Award in Software Engineering   2023
- SGI Corporate Scholarship   2019
- Alexander Rutherford Scholarship for Academic Excellence   2017
- University of Victoria Entrance Scholarship for Academic Excellence   2017

References
- ➢ **Cristian Najera** – AI Engineer, Convergence Concepts, Vancouver BC
- ➢ **Sergio Perez** – Engineering Lead, Ergonomyx Technologies Canada, Victoria BC
- ➢ **Tim Fitzgerald** – Operations Lead, Stantec, Calgary AB

*Contact information available upon request
*More detailed project descriptions and code available at *https://nolankurylo.github.io/*