Patrick Bardo

SOFTWARE ENGINEER

Contact

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Languages

English
Polish

Programming

Python, Java
Tensorflow
PySpark, Hive
SQL
Git
MATLAB
Typescript
Unity (C#)
Unreal Engine (C++)
Linux

Relevant Courses

IBM Data Science
Machine Learning
Deep Learning
Tensor Algebra
Probability & Statistics
Programming for Performance
Database Systems
Autonomous Vehicles
Data Structures
Algorithms

Awards

Global Experience
Int'l. Experience
Presidents Entrance, Research, and Int'l. Experience

Hobbies

Hockey
Volleyball
Badminton
Rock Climbing
Basketball
Skiing
Dance

Experience

2018–2019 **Software Engineer** — Etobicoke, ON
Woodbine Entertainment
- Converted loosely defined problems into key insights about wagerers using Hive and PySpark for Big Data manipulation (Hadoop framework)
- Developed Python scripts to automate Sqoop data integration from relational to NoSQL databases
- Optimized probabilistic models to solve problems wagerers were facing
- Utilized CUDA programming for Monte Carlo simulations to verify model results
- Creation of optimization algorithms delivering smart wagers to thousands of customers in real-time
- Developed Spring Boot microservices for onboarding new customers

2016 **Web Developer** — Waterloo, ON
Imagine Communications
- Developed front-end interactive applications using Typescript and AngularJS
- Created a dynamic algorithm to cost-effectively fit channels to a server that helped solve pain-points in the sales workflow
- Established a drag-and-drop user interface for editing audio/channel configurations

2016–2017 **Undergraduate Researcher** — Waterloo, ON
University of Waterloo: Frank Gu Research Group
- Ran independent synthesis and analysis of product for water purification
- Efficiently managed time to deliver multiple products at a time
- Kept detailed recordings of synthesis and characterization
- Developed protocols for scale-up synthesis of mesoporous carbon
- Gained valuable technical report writing experience which led to co-authoring of a published paper in Water Treatment

Projects

2020 **Kaggle - Deep Learning** — Tensorflow/Keras
- Developed an image binary classification model for determining whether a meme was about Doom or Animal Crossing
- Using transfer learning of the MobileNet_v2 architecture, 93.75% testing accuracy was achieved on a small dataset
- Applied base-layer freezing and fine tuning to decrease training time

2019 **Self-Driving Cars** — Python
- Learned about considerations for sensor data (RGB, LiDAR)
- Used OpenCV2 for lane detection of videos (Canny, Hough transform)
- Trained a scene segmentation network on an automotive dataset for labelling objects in a scene using Tensorflow
- Deployed the YOLO model for autonomous vehicle real-time object detection

2019 **Parallelism & Concurrency** — C & C++
- Parallelized HTTP requests to collate random image strips into a final image
- Automatically parallelized code using Solaris Studio
- Solved the n-Queens problem using OpenMP tasks
- Applied a brute force algorithm in parallel using OpenMP to determine a JWT secret

Education

2014–2019 **University of Waterloo** — Bachelor of Applied Science in Nanotechnology Engineering

2017–2018 **Delft University of Technology** — Masters International Exchange in Chemical Engineering