Yassir Mamouni

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Education

University of Montreal/Mila, Quebec AI Institute — Montreal, QC, Canada
Professional Master in Machine Learning — *Jan. 2021 – May 2023*

- *Focus on Machine Learning, Deep Learning and Reinforcement Learning*

Claude Bernard University — Lyon, Rhône, France
Bachelor of Science in Computer Science — *Sep. 2019 – June 2020*

Lyon 1 University, Institute of Technology — Villeurbanne, Rhône, France
Associate degree in Computer Science — *Sep. 2018 – Aug. 2020*

Lyon 1 University, Institute of Technology — Villeurbanne, Rhône, France
*Associate degree in Electrical Engineering and Information Technology** — *Sep. 2016 – Aug. 2018*

- **exchange program in Heritage College, Gatineau for a semester.*

Experience

Machine Learning R&D Intern — Aug. 2022 – April 2023
Desjardins — *Montreal, Quebec, Canada*

- Research and implement improvements in Reinforcement Learning for Recommender Systems *(RL for RecSys)*
- Literature reviews and research innovatory methods in RL for RecSys
- Implement offline Reinforcement learning methods for Group recommendations
- Report metrics and performance comparisons with Weight and Bias

Computer Science Tutor — July 2021 –
Polytechnic Montreal — *Montreal, Quebec, Canada*

- Tutoring for a first-year student in Computer & Software engineering
- Tutoring and private lessons in the following areas:
  - Object Oriented Programming in C++
  - Git
  - Linux & bash commands
  - Data Structure in Java
  - Propositional calculus

Network Administrator Intern — June 2019 – Aug. 2019
CASPOA NATO *Air Operation Center of Excellence* — *Air Force Base 942, Rhône, France*

- Set up a network monitoring solution.
- Researched every solution suitable for the unit and presented them during meetings.
- Worked in a hyper-converged infrastructure (HCI).
- Installed a Virtual Machine and monitoring services.
- Redacted an installation guide and procedures.

Data Entry Intern — June 2018 – Aug. 2018
SUEZ RV OSIS — *Vaulx-en-Velin, Rhône, France*

- In charge of the maintenance of robots used to clean nuclear power plants.
- Update the appliances census database.
- Maintenance of controllers and cameras.

Projects

Mario Bros Reinforcement Learning Project | *Python (PyTorch), Gym,Git* Mar. 2023 – May 2023

- Inspired by Train a Mario-playing RL agent from *PyTorch tutorials*
- Reproducibility and comparative studies to observe the change of agent's performance with different alteration of the environment
- Trained and deploy Double-DQN and Policy gradient.
- Comparative studies on robustness between *Value-Based* & *Policy-Based* methods.
- Worked with *Gym* Environment Wrapper & *PyTorch* Neural Networks.
- Project and report available on GitHub

Computer Vision Research Project | *Python (PyTorch), Jupyter, W&B,Git* Jan. 2022 – May 2022

- Analysis of Image Augmentation Methods on Different Types of Learning Problems
- Compared different Machine Learning techniques performance with image augmentation
- Trained a ResNet-20 and an All-Convolution Network on CIFAR-10 augmented dataset
- Worked with Supervised Learning, Semi-supervised learning implementation
- Investigate Few-shot learning solution
- Metrics and comparisons with *Weight&Bias*
- Project and report available on GitHub

Hockey Primer (*Data Science Project*) | *Python, Jupyter, Comet.ML, Jekyll* Sep. 2021 – Dec. 2021

- Feature extraction and transformation from NHL Stats API into interpretable data for a Machine Learning Model
- Training different models to have the best goal prediction in a Hockey Match
- Measurements and model registration with *Comet*
- Report writing in Jekyll Blog-post format
- Docker deployment

Paper about Playable Video Generation (*PVG*) | *Python (PyTorch), W&B* Jan. 2021 – May. 2021

- Research paper on playable video generation from the original research from **Willi Menapace.**
- Ablation studies and comparisons with similar and different datasets.
- Dataset creation for training, testing and validation of the model from the project.
- Measurements of the results per dataset and review.

Fire Emblem AI | *Python, Git* Sep. 2019 – Jan. 2020

- Developed a game and an AI based on the Fire emblem game-play.
- Implemented the game environment and the rules with PyGame.
- Developed the AI behaviours depending on the player's data.

Network monitoring | *Linux commands and bash scripts* June 2019 – Aug. 2019

- Install and set up the solution *Eyes of Network* (*CentOS distrib*) including Nagios, Cacti, Nagvis.
- Set up the SNMP V3 requests with SHA authentification.

Technical Skills

Programming Languages: Python (**NumPy, Pandas, Scikit-Learn, PyTorch, TensorFlow, Gym**), Java (8 and 11),
C (System and Structural), Bash, C++, SQL (Postgres, Oracle).
Developer Tools: Git, Google Colab, Jupyter, Kaggle, Anaconda, PyEnv, VS Code, Google Cloud Platform, Matlab.
Extra Libraries: Librosa, Music21, BioPython, Node2Vec, Airflow, OpenCV, Pygame.
Others: Familiar with Lab-View, Arduino, electronics, soldering, and electrical engineering.