Maximilien Le Clei

PhD student @ Mila (world's largest deep learning academic research center)
Previously: Applied Research Scientist Lead @ D-BOX Technologies (haptic motion technology)
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Professional Experience

PhD Student Researcher @ Mila - Quebec AI Institute, Toronto (Remote), Canada — Oct 2024 - Present
- Combining deep learning & evolutionary machine learning for human agentic & brain behaviour imitation, new work at GECCO 2024

Applied Research Scientist Lead @ D-BOX Technologies, Toronto (Remote), Canada — Jan 2024 - Jun 2025
- Convinced superiors through various presentations to branch out from efforts in classical deep learning (classification of human labeled events w/ CRNNs) to explore generative AI to further automate the creation of D-BOX movie tracks
- Led the company's effort in applying generative AI to imitate D-BOX haptic artist tracks (generative modeling of 1D signals – chair actuators displacement – with audio+video conditional diffusion transformers | state space models)
- Ran scaling experiments over training regimes, architectural choices, modalities, model size & dataset size; trained billion parameter models on terabytes of data. Models far exceeded superiors' expectations and were promptly integrated into the production pipeline
- Engaged w/ leadership to pave the way for a massive automation leap in D-BOX's content generation through real-time generation

Research Scientist @ Montreal Geriatric Institute, Toronto (Remote), Canada — Sep 2021 - Aug 2023
- Led the development of a strongly automated and highly collaborative machine learning (deep learning + evolutionary machine learning) training workspace to speed up and strengthen the experiments of present machine learning researchers
- Technical contribution: audio model alignment with fMRI data to improve generalization, published in Imaging Neuroscience 2025
- Technical advising: large language model (LLM) fine-tuning + visual language model (VLM) for fMRI brain data alignment
- Evolutionary machine learning for human video game behaviour cloning & modern reinforcement learning benchmarks
- First-author publications at major machine learning conferences : ICLR ALOE workshop 2022, GECCO 2022 & 2023

MSc Student Researcher @ Mila - Quebec AI Institute, Montréal, Canada — Jan 2019 - Aug 2021
- Research and development of novel evolutionary machine learning algorithms for imitation and reinforcement learning
- Developed i) a highly scalable and distributed open-source general purpose evolutionary machine learning library ii) a novel high-level imitation learning paradigm and iii) extremely compute efficient artificial neural networks

Applied Research Scientist Intern @ Capbeast, Montréal, Canada — Jan 2018 - Apr 2018
- Early-stage application of modern deep reinforcement learning techniques to industrial embroidery problems
- Developed embroidery virtual environments of various complexity/fidelity & applied state-of-the-art deep reinforcement learning algorithms (DQN, Prioritized experience replay & Dueling Double-Q-Learning) to prototype highly capable embroidering agents

Education

University of Montréal, Montréal, Canada
Doctor of Philosophy - PhD, Computer Science (Artificial Intelligence) — Sep 2023 - Present
Master of Science - MSc, Computer science (Artificial Intelligence) — Sep 2018 - Aug 2021

Concordia University, Montréal, Canada
Bachelor of Computer Science - BCompSc, Computer Science (Computer Systems) — Sep 2015 - Apr 2018

Skills

Topics: generative AI, deep learning, evolutionary machine learning, high performance computing, imitation learning, reinforcement learning, continual learning, computer vision, NLP, robotics, MLOps, CI/CD
Technical: Python, PyTorch, Lightning, JAX, Tensorflow, MPI, HuggingFace, Weights & Biases, Bash, Slurm, Hydra, Submitit, Docker, GCP, GitHub Actions, Git, Pre-commit, Sphinx, Beartype, Devcontainers, Pytest, Jaxtyping, Claude Code, GitHub Copilot
Open-source contributions: google/evojax (scalable evolutionary machine learning), ROCm/TheRock (AMD ROCm/PyTorch)