Korneel Van den Berghe

GitHub LinkedIn e-mail

Machine Learning Robotics Engineer with 4+ years of experience in reinforcement learning, autonomous systems, and neuromorphic computing. Passionate about building intelligent agents that interact with the physical world, with a track record of deploying models to embedded systems and real-time hardware.

Education

University of Technology Delft Sept. 2019 - Aug. 2022
B.Sc. (+ Honours Programme) Aerospace Engineering *Delft, NL*

University of Technology Delft Sept. 2022 - December 2024
M.Sc. (+ Honours Programme) Aerospace Engineering, Control and Simulations *Delft, NL*

Experience

Lead Machine Learning Researcher and Engineer Aug. 2024 – Present
Harbor AI *New York City, USA*

- Leading the development of reinforcement learning models for dynamic insurance price optimization.
- Conducting interpretability research for inherently explainable risk analysis systems.
- Building and scaling the MLOps infrastructure to support company growth beyond $100M valuation.

Visiting Researcher, Machine Learning Aug. 2023 – Jul. 2024
Edge Computing Lab, Harvard University *Boston, USA*

- Co-authored and maintain NeuroBench, a benchmarking framework for neuromorphic and non-neuromorphic algorithms; contributed metrics, publication writing, and community engagement.
- Contributed to A2Perf, a reinforcement learning benchmarking suite; ensured cross-platform compatibility and reproducibility.
- Explored RL-based pruning methods for resource-efficient drone controllers using TinyML and event-driven neuromorphic computation.

Machine Learning Researcher Aug. 2020 – Dec. 2024
Honours Programme MSc, TU Delft *Delft, NL*

- Developed and deployed neuromorphic MAV controllers using event data and optic flow, trained via reinforcement learning with on-device fine-tuning.
- Designed implementations of deep Q-learning (DQN) algorithms for low-power RL on edge devices.
- Created structural topology optimization tools for compliant wing morphologies in aerospace applications.

Structural and Control Systems Engineer Sep. 2022 – Dec. 2023
AeroDelft (Hydrogen Aircraft Project) *Delft, NL*

- Led design and implementation of control systems in C++ for the world's first student-built hydrogen-powered aircraft.
- Prototyped and translated CAD designs into fully tested flight-ready hardware.

Publications

NeuroBench: Advancing Neuromorphic Computing through Collaborative, Fair and Representative Benchmarking
Jason Yik, **Korneel Van den Berghe**, Charlotte Frenkel, Vijay Janapa Reddi, and the NeuroBench community
Nature Communications, NICE Conference 2024

NeuroBench: Closed Loop Benchmarking
Korneel Van den Berghe, Jason Yik, Charlotte Frenkel, Vijay Janapa Reddi, and the NeuroBench community
Neuromorphics Netherlands 2024, ASPLOS 2025

Machine Learning Systems, with TinyML
Korneel Van den Berghe, 38 contributors, Matthew Stewart, Vijay Janapa Reddi
Book Chapter

Control with Spiking Neural Networks Trained with Reinforcement Learning Using Surrogate Gradients
Korneel Van den Berghe, Stein Stroobants, G.C.H.E. de Croon
ICNCE 2024

A2Perf: A Benchmarking Suite for Evaluating Autonomous Agents in Real-World Domains
Ikechukwu Uchendu, Jason Jabbour, **Korneel Van den Berghe**, 7 contributors, Aleksandra Faust, Vijay Janapa Reddi
Under review, TMLR

Recurrent Reinforcement Learning with Surrogate Gradients
Korneel Van den Berghe, Stein Stroobants, Vijay Janapa Reddi, G.C.H.E. de Croon
Under review, NeurIPS 2025