Delanoe Pirard

Artificial Intelligence Researcher

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Aedelon

Profile

Artificial Intelligence Researcher with strong experience in applied deep learning and computational modeling. Skilled in translating research concepts into experimental AI systems, with exposure to bioinformatics. Holding a ***Master's degree in Bioinformatics and Modelling (Cum Laude)*** from the Université libre de Bruxelles. Passionate about using AI-driven innovation to advance scientific and industrial applications, producing reliable and impactful results.

Professional Experience

Oct. 2023 – Present **Artificial Intelligence Researcher**, *Alpaflow*, Brussels

- Leading applied research and experimentation on an ***autonomous sewing robot***, responsible for the design and development of all AI components.
- Applying ***classical planning*** techniques to optimize task scheduling, execution efficiency, and adaptive decision-making.
- Integrating ***reinforcement learning*** to improve behavioral flexibility and real-time adaptability of robotic systems.
- Utilizing ***computer vision*** for accurate object recognition and precise manipulation of sewing operations.
- Developing ***physics-based simulation pipelines*** (Mujoco, IsaacSim) to accelerate both learning and planning processes.
- Leveraging ***NVIDIA's software and hardware ecosystem*** to optimize training and inference performance.

Keywords: Computer Vision – Reinforcement Learning – Simulation – Planning – Cloud Computing – R&D.
Technical Stack: Python, PyTorch, JAX, Mujoco, IsaacSim, NVIDIA, CUDA, Google Cloud Platform, Docker, CI/CD.

Sep. 2022 – Jan. 2023 **Bioinformatician / ML Engineer**, *ULB – 3BIO*, Brussels

Conducted research on ***protein language models*** for predicting protein melting temperatures using ***NLP-inspired deep learning architectures***. Developed and fine-tuned novel models and ***ProteinBERT***-based solutions that surpassed existing benchmarks in protein biophysics prediction. Designed experiments, managed datasets, and performed model validation through statistical analysis.

Keywords: Bioinformatics – Deep Learning – Protein Modelling – NLP for Proteins – Statistical Validation.
Technical Stack: Python, TensorFlow, PyTorch, R.

Feb. 2022 – Aug. 2022 **Bioinformatician / ML Engineer (Internship)**, *IRIBHM*, Brussels

Collaborated with researchers in computational biology and pathology to design and validate models. Conducted exploratory research in ***digital pathology***, developing deep learning models to detect morphological structures in ***pancreatic histology slides*** and identify ***malignant patterns (PDAC)***. Designed and tested clustering and segmentation pipelines, and explored ***correlations between morphological features and clinical data***.

Keywords: Digital Pathology – Computer Vision – Statistical Correlation – Research.
Technical Stack: Python, TensorFlow, PyTorch, R.

Jun. 2021 – Mar. 2022 **Full Stack Developer (Freelance)**, *Quentin – Hengartner Elektronic AG*, Zurich / Chur
Designed and developed a ***web-based parking management application*** integrating IoT indicators and real-time data visualization. Delivered the full software lifecycle from requirements to deployment in close collaboration with the client.

Keywords: Software Design – Web Application – IoT Integration – Project Management.
Technical Stack: JavaScript, C#, React.js, Redux, Axios, .NET, MySQL, Microsoft Azure.

Apr. 2021 – May 2021 **IT Consultant (Freelance)**, *Quentin – Bühler – Miller Milling*, Zurich / Uzwil / Los Angeles
Conducted consulting sessions and feasibility studies for ***IoT-based process optimization solutions*** in industrial production chains.

Keywords: IoT Systems – Process Optimization – Technical Consulting.

Mar. 2021 **Backend Developer (Freelance)**, *Quentin – Bühler*, Brussels / Zurich / Uzwil
Improved and maintained the ***backend infrastructure*** acting as a hub for IoT data collection and processing.

Keywords: Backend Development – Data Integration – Azure Infrastructure.
Technical Stack: C#, .NET, KustoDB, Microsoft Azure.

Jul. 2018 – Sept. 2020 **Co-founder / Full Stack Developer**, *Eavox*, Brussels
Co-founded and launched a ***sports competition platform*** featuring team challenges, real-time communication, and media promotion. Led product design, technical implementation, and public release cycles.

Keywords: Entrepreneurship – Mobile Development – Product Design – R&D.
Technical Stack: C#, Xamarin, ASP.NET, Microsoft Azure.

Feb. 2017 – Mar. 2018 **Full Stack Developer**, *LevelApp*, Groenendael
Developed multiple ***mobile and backend applications*** using Xamarin and .NET frameworks. Worked on ***chatbots, IoT systems, and data-driven applications*** with a focus on scalability and client collaboration.

Keywords: Mobile Development – IoT – Big Data – R&D – Customer Interaction.
Technical Stack: C#, Xamarin, ASP.NET, CosmoDB, Microsoft Azure.

Education

2018 – 2022 **M.Sc. in Bioinformatics and Modelling (Cum Laude)**, *Université libre de Bruxelles*, Brussels
Thesis (Magna Cum Laude): "Deep learning for protein prediction – Predicting the melting temperature from protein sequences."

2014 – 2017 **Bachelor's in Business Computing (Cum Laude)**, *Institut Paul-Lambin*, Brussels
Thesis: "Analysis and development of a multi-platform mobile application aimed at monitoring smart sensors and analysing their data collected via the LORA network."

Certifications & Additional Training

2025 **NVIDIA Isaac for Accelerated Robotics** — NVIDIA
2025 **Hugging Face Agents Course** — Hugging Face
2025 **Generative AI Engineering with LLMs Specialization** — IBM / Coursera
2023 **Machine Learning in Production** — DeepLearning.AI / Coursera
2023 **Generative AI with Large Language Models** — DeepLearning.AI / Coursera
2023 **PyTorch for Deep Learning: Zero to Mastery** — Udemy
2021 **Deep Learning Specialization** — DeepLearning.AI / Coursera
2020 **Machine Learning** — Stanford University / Coursera (Andrew Ng)

Skills & Expertise

Programming Languages	Python, R, C#, JavaScript, LaTeX
Deep Learning Frameworks	PyTorch, JAX, Scikit-learn
Research Tools & Libraries	NumPy, Pandas, SciPy, Matplotlib, Seaborn, Hugging Face Transformers, OpenCV
Data Management	MySQL, MariaDB, Data Preprocessing, Statistical Analysis, Experiment Tracking (MLFlow)
AI & Research Expertise	Machine Learning, Deep Learning, Reinforcement Learning, Computer Vision, Simulation, Bioinformatics, Explainable AI, Model Evaluation
Development & Deployment	Linux, Microsoft Azure, Cloud Computing, MLOps Fundamentals, Version Control (Git), NVIDIA Ecosystem, Docker, Google Cloud Platform
Scientific & Communication Skills	Research Design, Experimental Validation, Reproducibility, Scientific Writing, Cross-disciplinary Collaboration

Languages

French	Native
English	Upper-Intermediate (B2)

Extra-Curricular Activities

Jun. 2023 – Present **Developer (Personal Project)**, *ProteinMEGA*, Brussels
Creation of ***ProteinMEGA***, a new deep learning model designed to outperform current benchmarks in protein sequence prediction.
IT Skills: Python, PyTorch.

Jun. 2023 – Present **Developer (Personal Project)**, Brussels
Deep Learning paper replications (see GitHub).
IT Skills: Python, PyTorch.