

# Delanoe Pirard

Artificial Intelligence Researcher

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## 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 – Nov. 2025 **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 Electronic 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.

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## 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."

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## 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)

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## Skills & Expertise

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

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## Languages

<b>French</b>	Native
<b>English</b>	Upper-Intermediate (B2)

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## Extra-Curricular Activities

- Nov. 2025 – Present **Developer (Personal Project), *RGBD-Depth***, Brussels  
Optimized PyPI package for ***metric depth estimation from RGB-D cameras***, implementing ByteDance's Camera Depth Models with production-ready features including xFormers optimization (+8% faster), mixed precision support, and device-specific optimizations for CUDA/MPS/CPU.  
**IT Skills:** Python, PyTorch, Computer Vision, Robotics, Performance Optimization.  
**Repository:** [github.com/Aedelon/rgb-d-depth](https://github.com/Aedelon/rgb-d-depth)  
**PyPI:** [pypi.org/project/rgb-d-depth](https://pypi.org/project/rgb-d-depth)
- Nov. 2025 – Present **Developer (Personal Project), *Awesome Depth Anything 3***, Brussels  
Production-optimized fork of Depth Anything 3 for ***3D reconstruction, camera pose estimation, and point cloud generation***. Achieved 200x faster model loading through caching, adaptive batching for GPU memory optimization, and comprehensive benchmarking across devices.  
**IT Skills:** Python, PyTorch, Computer Vision, 3D Reconstruction, CI/CD.  
**Repository:** [github.com/Aedelon/awesome-depth-anything-3](https://github.com/Aedelon/awesome-depth-anything-3)  
**PyPI:** [pypi.org/project/awesome-depth-anything-3](https://pypi.org/project/awesome-depth-anything-3)
- Jun. 2023 – Present **Open-Source Developer, *Multiple Projects***, Brussels  
Maintainer of ***open-source libraries*** for computer vision and depth estimation, with packages published on PyPI and active community engagement.  
**IT Skills:** Python, PyTorch, Computer Vision, Package Development.  
**GitHub:** [github.com/Aedelon](https://github.com/Aedelon)
- Jun. 2023 – Present **AI Writer, *Medium***, Brussels  
Published articles on ***AI industry trends, emerging models, and research developments***, engaging an audience of ***3.5K+ followers***.  
**IT Skills:** Content Writing, AI Industry Analysis, Science Communication.  
**Blog:** [medium.com/@aedelon](https://medium.com/@aedelon)