

# Pedro Devogelaere

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## Education

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- KU Leuven** Leuven, Belgium  
M.Sc. Biomedical Engineering (specialisation: Biomedical Data Analytics) 2023 – 2025  
Grade: 86.14% — *summa cum laude* — Ranked 1<sup>st</sup> out of 43 students (P95 percentile).  
Thesis: *A Systematic Evaluation Framework of Generative Deep Learning for 10-second 12-lead Synthetic ECG Signals* (grade: 17/20). Promotor: Prof. Maarten De Vos (STADIUS, ESAT). Supervisor: Lore Van Santvliet.  
Selected courses: Optimisation 19/20 · Selected Topics in Biomedical Signal Processing 17/20
- ETH Zürich** Zürich, Switzerland  
Exchange Semester Sept. 2023 – Feb. 2024  
Grade: 95% — *summa cum laude*.  
Selected courses: Probabilistic Artificial Intelligence 5.25/6
- KU Leuven** Leuven, Belgium  
B.Sc. Engineering Sciences (Biomedical Technology & Electrotechnical Engineering). 2020 – 2023  
Grade: 78.69% — *magna cum laude*.  
Honours Programme: *Deep Learning-Based Classification and Prediction of Breathing Patterns*  
(supervisors: Prof. Sofie Pollin, KU Leuven; Prof. Yang Miao, University of Twente)  
Selected courses: Applied Algebra 17/20 · Numerical Analysis 17/20 · Digital Signal Processing 17/20
- Sint-Albertuscollege Haasrode (Salco Haasrode)** Heverlee, Belgium  
Secondary Education, Maths-Latin. 2014 – 2020

## Research Experience

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- KU Leuven — STADIUS, Dept. of Electrical Engineering (ESAT)** Leuven, Belgium  
PhD Researcher Oct. 2025 – present  
Developing *Efficient Deep Learning with Autonomous Linear State Space Models (ALSSMs)*: integrating the ALSSM signal processing framework into trainable deep learning layers for multi-scale pattern recognition and flexible attention mechanisms at linear computational cost.  
FWO PhD Fellowship fundamental research application (submitted Mar. 2026).  
Promotor: Prof. Alexander Bertrand; co-promotor: Prof. Reto Wildhaber (ETH Zürich / FHNW).
- KU Leuven — Medical Imaging Research Center (MIRC)** Leuven, Belgium  
Student Researcher Summer 2024  
Developed a state-of-the-art image parcellation tool for multimodal lesioned brain MR images.  
**Paper submission** in preparation.  
Supervisors: Prof. Frederik Maes & Dr. Ahmed Radwan.
- KU Leuven — Medical Imaging Research Center (MIRC)** Leuven, Belgium  
Student Researcher Summer 2023  
Built a state-of-the-art image segmentation tool for diffusion-weighted MRI and integrated it into the clinical MIM system at UZ Leuven.  
Supervisors: Prof. Frederik Maes & Prof. Vincent Vandecaveye.

## Teaching Experience

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**KU Leuven** — Teaching Assistant 2025 – present  
*Digital Signal Processing*

Delivered exercise sessions to ~150 second-year bachelor students.

**KU Leuven** — Teaching Assistant 2022 – 2025  
*Information Processing and Transmission*

Delivered weekly exercise sessions to ~350 second-year bachelor students (2022–2023).

Updated course slides and wrote new course material over three academic years (mentor: Prof. Sofie Pollin).

Awarded the **Golden Chalk Award** for best teaching assistant, as voted by students (2023).

**Slaagsleutels** — Tutor 2021 – 2022

Tutored university students in Calculus, Physics and Programming courses.

## Awards & Honours

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**1<sup>st</sup> Place (Technical)** Engineering Case Competition, VTK & Industria Leuven, Nov. 2024.

**2<sup>nd</sup> Place (Technical)** Data4Good Hackathon, Hertie School Data Science Lab, Berlin, Apr. 2024.

**Golden Chalk Award** Best teaching assistant, voted by second-year bachelor students, KU Leuven, 2023.

**P&O3 Laureate** Alumni Association VTK / KU Leuven, Honorary project award. Dec. 2021.

## Leadership & Activities

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**National Committee of Biomedical Engineering** — Youngster Committee Member 2025 – present

Co-organised the 22<sup>nd</sup> National Day of Biomedical Engineering (Dec. 2025), Belgium's annual national conference for the biomedical engineering community.

**Biomedix - VTK Leuven** — Founder & President 2024 – 2025

Founded and led a student organisation dedicated to biomedical engineering students; coordinated events offering networking opportunities; built and maintained sponsor relationships.

**Permanent Education Committee (POC), KU Leuven** — Member 2022 – 2025

Represented students in the committee responsible for the Biomedical Engineering curriculum; contributed to curriculum development and educational quality assurance.

**VTK Leuven** — IT Member 2022 – 2024

Managed and maintained association website; developed services including a wiki, online ticket system, and stock management system. Stack: PHP, Next.js, HTML, CSS, JavaScript.

**HalfTime - VTK Leuven** — President 2022 – 2023

Led the social organisation for third-year engineering students; planned and executed activities for the cohort.

**Kanweek - VTK Leuven** — President 2021 – 2022

Led the welcoming organisation for first- and second-year engineering students; organised orientation activities and community-building events.

## Skills & Interests

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**Programming** Python (PyTorch, NumPy, SciPy, Matplotlib), MATLAB, PHP, Next.js, HTML/CSS/JavaScript

**Technical** C++, CUDA, parallel computing (in progress)

**Languages** Dutch (native), English (fluent), Portuguese (native), French (basic)

**Interests** Gym, cycling, science communication