

Ciem Cornelissen

PhD Researcher in Computer Science Engineering

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EDUCATION

Ghent University - imec

Ghent, Belgium

PhD in Computer Science Engineering – Deep learning & Robotic sensing

Jun. 2024 – Present

- Affiliated with IDLab, Department of Information Technology

KU Leuven

Leuven, Belgium

Advanced Master of Artificial Intelligence – Magna Cum Laude

Sep. 2022 – Jun. 2023

- Specialization: Deep Learning, Computer Vision, Transformer Architectures, Data Science
- Master's Thesis: "Quantum Computing Applications in Machine Learning"

Ghent University

Ghent, Belgium

Master of Science in Physics – Cum Laude

Sep. 2020 – Jun. 2022

- Master's Thesis: "Criticality and Forecasting of the Cryptocurrency Market"

RESEARCH EXPERIENCE

PhD Researcher

Jun. 2024 – Present

IDLab, Ghent University - imec

Ghent, Belgium

- Developed LISA (Light-Invariant Spectral Autoencoder), a domain-adversarial deep learning framework for illumination-invariant hyperspectral imaging analysis, improving quality prediction generalization by over 20%
- Created OHSLIC algorithm for efficient UAV-based hyperspectral phenotype segmentation, enabling real-time on-device processing with superior accuracy and significantly reduced inference time
- Built end-to-end IoT-enabled robotic system for non-destructive grape yield and quality mapping in precision viticulture, achieving 0.82 recall for bunch detection and $R^2 = 0.76$ for weight prediction

PUBLICATIONS

In-Field Mapping of Grape Yield and Quality with Illumination-Invariant Deep Learning

2025

- IEEE Internet of Things Journal* (Oct. 2025)
- Developed LISA framework for illumination-invariant hyperspectral imaging in precision viticulture
- Complete IoT-enabled robotic system for non-destructive, real-time mapping of grape yield and quality
- Co-authors: S. De Coninck, A. Willekens, S. Leroux, P. Simoens

Adaptive Clustering for Efficient Phenotype Segmentation of UAV Hyperspectral Data

2025

- IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) Workshops* (Mar. 2025)
- Introduced OHSLIC algorithm for computationally efficient, real-time phenotype segmentation
- Enables on-device processing on UAVs with superior accuracy and reduced inference time
- Co-authors: S. Leroux, P. Simoens

Computational Fairness in Adaptive Neural Networks

2025

- Neural Computing and Applications* (Jun. 2025) – Co-author
- Contributed to investigation into fairness of adaptive neural networks and computational resource allocation
- Research introduces computational resource allocation as a new dimension of AI fairness
- Authors: S. Leroux, C. Cornelissen, V. Sharma, P. Simoens

TECHNICAL SKILLS

Machine Learning & AI: Deep Learning, Computer Vision, Transformer Architectures, Domain-Adversarial Learning, Adaptive Neural Networks, Reinforcement Learning, PyTorch, TensorFlow

Sensors & Data Processing: Hyperspectral Imaging (HSI), RGB and SWIR Sensors, Multi-modal Sensor Fusion, UAV-based Remote Sensing, Signal Processing, Spectral Analysis

Programming Languages: Python, C/C++, Java, Matlab, Prolog, \LaTeX

Software Development: Git, Docker, Data Visualization, IoT Systems, Field Robotics, Linux

Languages: Dutch (Native), English (Fluent, C2 level)