Remco Royen, PhD

SOFTWARE ENGINEER - (3D) COMPUTER VISION ENGINEER - MACHINE LEARNING ENGINEER

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"Towards seamless interactions between the digital and physical world through 3D processing"

Experience

Vrije Universiteit Brussel — *Brussels, Belgium*
POSTDOCTORAL COMPUTER VISION RESEARCHER — *Jun. 2024 - current*
Conduct & supervise **state-of-the-art 3D computer vision** research.
Teaching assistant and writing of academic funding projects.

VoxelSensors (research project) — *Brussels, Belgium*
COMPUTER VISION RESEARCHER — *Jan. 2023 - Jun. 2024*
Achieved a **61% reduction in processing time** for 3D sensors.
Developed & implemented efficient solutions, resulting in a **patent**.

Xenomatix (research project) — *Leuven, Belgium*
COMPUTER VISION RESEARCHER — *Nov. 2019 - Dec. 2021*
Created a rapid, highly-accurate, and efficient LiDAR simulator.
Performed **precise semantic segmentation** on a **real-world LiDAR**.

Macq SA/NV — *Brussels, Belgium*
MACHINE LEARNING INTERNSHIP — *Jul. 2018 - Sep. 2018*
Created highly-accurate synthetic license plate data.
Increased robustness of a YOLO for OCR on traffic cameras.

Education

Vrije Universiteit Brussel — *Brussels, Belgium*
PhD in engineering sciences - 3D computer vision (summa cum laude) — *Nov. 2019 - Jun. 2024*
- Thesis title: "Adressing labelling, complexity, latency, and scalability in deep learning-based processing of point clouds".
- **Awards**: PhD selected for presentation at BMVC24 Doctoral Consortium and awarded with PhD fellowship strategic research at FWO.

Vrije Universiteit Brussel & Université Libre de Bruxelles — *Brussels, Belgium*
M.Sc in electrical engineering (Summa cum laude (88%)) — *Sep. 2017 - Jun. 2019*

Sapienza Università di Roma — *Rome, Italy*
M.Sc in Artificial Intelligence and Robotics (Erasmus+ exchange program) — *Sep. 2018 - Jan. 2019*

Skills

Programming	Python (PyTorch, TensorFlow, OpenCV, Numpy, etc.), Git, Matlab, Java, Assembly
Machine Learning	Model Training, Optimization, Real-Time Model Evaluation, Scalability, Runtime Optimization, ML Pipelines
Domain Experience	3D Computer Vision, Deep Learning, Point Cloud Segmentation, 6D Pose Estimation, Gaussian Splatting
Soft Skills	Problem-solving, Self-Motivation, Time Management, Communication, Teamwork, and Continuous Learning
Languages	Dutch (C2), English (C1), French (C1), German (A2 - learning), Italian (A2)

Selected journal articles

W6DNet: Weakly-supervised domain adaptation for monocular vehicle 6d pose estimation with 3d priors and synthetic data
Y. Lyu, R. Royen, and A. Munteanu
2024 IEEE Transactions on Instrumentation and Measurement

Joint prototype and coefficient prediction for 3d instance segmentation
R. Royen, L. Denis, and A. Munteanu
2024 IET Electronics Letters

Masklayer: Enabling scalable deep learning solutions by training embedded feature sets
R. Royen, L. Denis, Q. Bolsee, P. Hu, and A. Munteanu
2021 Neural Networks (IF 9.7)

Selected conference proceedings

RT-GS2: Real-Time Generalizable Semantic Segmentation for 3D Gaussian Representations of Radiance Fields
R. Royen, M.B. Jurca, I. Giosan, and A. Munteanu
2024 British Machine Vision Conference (BMVC)

RESSCAL3D: Resolution scalable 3d semantic segmentation of point clouds
R. Royen and A. Munteanu
2023 IEEE International Conference on Image Processing (ICIP)

Mono6d: Monocular vehicle 6d pose estimation with 3d priors
Y. Lyu, R. Royen, and A. Munteanu
2022 IEEE International Conference on Image Processing (ICIP)

Patents

Not yet disclosable patent title
R. Royen, A. Munteanu, and W. van der Tempel

Extra

Hobbies	Theater, hiking, running and traveling
Peer-reviewer	CVPR, TIP, BMVC, ICIP, ACIVS, DSP