Remco Royen

3D COMPUTER VISION - POINT CLOUD PROCESSING - MACHINE LEARNING

4 February 1997 | Brussels, Belgium | (+32) 494445911 | remcoroyen@gmail.com

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

Education

Vrije Universiteit Brussel   *Brussels, Belgium*

PHD IN ENGINEERING SCIENCES   *Nov. 2019 - Jun. 2024*

- Awarded with a PhD fellowship strategic basic research at Research Foundation Flanders (FWO).
- Research interests are in computer vision and deep learning with focus on scalability, scene understanding and point cloud processing.
- Publications in reputable journals and conferences.
- Research collaborations with companies such as Xenomatix, Sabca and VoxelSensors, leading to a patent.
- Thesis title: "Adressing labelling, complexity, latency, and scalability in deep learning-based processing of point clouds".

Vrije Universiteit Brussel & Université Libre de Bruxelles   *Brussels, Belgium*

M.SC IN ELECTRICAL ENGINEERING (SUMMA CUM LAUDE (88%))   *Sep. 2017 - Jun. 2019*

- Thesis title: "Scalable autoencoders for structured and unstructured data".

Sapienza Università di Roma   *Rome, Italy*

M.SC IN ARTIFICIAL INTELLIGENCE AND ROBOTICS   *Sep. 2018 - Jan. 2019*

- Erasmus+ exchange program. Specialization in Artificial Intelligence and Machine Learning.

Vrije Universiteit Brussel   *Brussels, Belgium*

B.SC. IN ENGINEERING   *Sep. 2014 - Jun. 2017*

Skills

Programming	Python, PyTorch, TensorFlow, Matlab, Java, Assembly
Machine Learning	3D Computer Vision, Deep Learning, Point Cloud Segmentation, Domain Adaptation, 6D Pose Estimation
Soft Skills	Team player, Hard-working, Curious, Creative, Problem-solver, Communicator
Languages	Dutch (C2), English (C1), French (C1), German (A1 - learning), Italian (A1)

Experience

Macq SA/NV   *Brussels, Belgium*

NEURAL NETWORKS INTERNSHIP   *Jul. 2018 - Sep. 2018*

- Synthetic data creation for data augmentation and its usage in the training of a YOLO network for license plate detection and OCR for smart traffic cameras.

Aisin Europe   *Braine-l'Alleud, Belgium*

PROGRAMMING STUDENT JOB   *Jul. 2017 - Sep. 2017*

- Optimalization of the automatic tests used for the validation of the software of gear boxes.

Teaching experience

Machine Learning and Big Data Processing   *Vrije Universiteit Brussel*

TEACHING ASSISTANT   *2021-2024*

- Responsible for lab sessions and exercises about neural networks. Guidance of student projects and grading.

Master Theses   *Vrije Universiteit Brussel*

MASTER THESIS SUPERVISION   *2020-2024*

- Guidance of master theses in the domains of view synthesis, gaussian splatting and deep learning for meteorology

Sensors and microsystem electronics   *Vrije Universiteit Brussel*

TEACHING ASSISTANT   *2019*

- Guidance lab sesions of programming a microcontroller in assembly language. Guidance of student projects and grading.

Patents

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

Journal articles

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

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

Pcgen: a fully parallelizable point cloud generative model
N. Vercheval, R. Royen, A. Munteanu, and A. Pižurica
2024 MDPI Sensors

Gpu rasterization-based 3d lidar simulation for deep learning
L. Denis, R. Royen, Q. Bolsee, N. Vercheval, A. Pižurica, and A. Munteanu
2023 MDPI Sensors

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

Conference proceedings

RESSCAL3D++: Joint acquisition and semantic segmentation of 3D point clouds (under review)
R. Royen, K. Pataridis, W. van der Tempel, and A. Munteanu
2024 IEEE International Conference on Image Processing (ICIP)

Resscal3d: Resolution scalable 3d semantic segmentation of point clouds
R. Royen and A. Munteanu
2023 IEEE International Conference on Image Processing (ICIP)

Mono6d++: Learning point cloud visibility for 3d prior-based vehicle 6d pose estimation
Y. Lyu, O. Ducastel, R. Royen, and A. Munteanu
2023 11th European Workshop on Visual Information Processing (EUVIP)

Improved block merging for 3d point cloud instance segmentation
L. Denis, R. Royen, and A. Munteanu
2023 24th International Conference on Digital Signal Processing (DSP)

A deep-learning-based approach to automatically measuring foots from a 3d scan
N. N. Kaashki, R. Royen, X. Dai, P. Hu, and A. Munteanu
2022 IEEE Asia-Pacific Conference on Computer Science and Data Engineering (CSDE)

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

References

Prof. Dr. ir. Adrian Munteanu
Professor at Vrije Universiteit Brussel
adrian.munteanu@vub.be

Extra

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