Dr Cedric Scheerlinck

Deep Learning Research Engineer

Web: <u>https://cedricscheerlinck.com</u> Google Scholar: <u>https://scholar.google.com.au/citations?user=UU0Ql2wAAAAJ</u> Email: <u>cedric.scheerlinck1@gmail.com</u>

I have a strong background in computer vision and extensive experience in training deep neural networks for real-world applications. I am passionate about advancing AI and automation to benefit humanity, and I am eager to learn and grow to embrace new challenges.

Experience

2024 - current, Deep Learning Engineer, Zoox

- Mining data for vehicle/pedestrian behavior prediction models for driverless robotaxi

2021 - 2024, Senior Deep Learning Engineer, Skydio, Remote

- Trained deep neural networks for visual perception, flow, segmentation and obstacle avoidance.
- Managed the entire training pipeline from data generation and augmentation to model evaluation and real-world deployment to drone.
- Led key breakthroughs in researching and developing core night models, culminating in the successful launch of NightSense, enabling autonomous flight at night.
- Sim2Real, teacher-student models, transformers, multitask learning, speed/accuracy optimization, large-scale no-reference evaluation and hard mining.

Education

2017 - 2021, Ph.D. in Computer Vision, Australian National University

- Dissertation: "How to See with an Event Camera".
- Trained lightweight, multi-headed recurrent CNNs for video reconstruction and flow for event cameras obtaining SOTA results.
- Optimized model efficiency gaining 3x speedup over previous SOTA on same hardware.

2018 - 2019, Research Visit, University of Zurich & ETH, Robotics and Perception Group

2014 - 2016, Master of Mechanical Engineering, Melbourne University

- Computational fluid dynamics simulation of blood flow in 3D reconstructions of real human arteries from angiography + optical coherence tomography

2012 - 2014, Bachelor of Science, Melbourne University

Projects

2020, Event CNN collaboration (machine learning, Python) https://github.com/TimoStoff/event_cnn_minimal 2019, Color Event Camera Dataset

http://rpq.ifi.uzh.ch/CED.html

2018, DVS Image Reconstruction (open-source C++ project)

https://github.com/cedric-scheerlinck/dvs_image_reconstruction Additional Experience

2021 - 2023, Guest Lecturer, Australian National University (ANU)

2021, Finding X (producer) https://youtu.be/MGp77CmhhLw

2017, Associate Fellowship Higher Education Academy (AFHEA), ANU

2016 - 2018, Teaching Assistant, Melbourne University & ANU

2015, Research Assistant, Melbourne University

Awards

- 2018 Swiss Government Excellence Scholarship
- 2017 PhD Scholarship (AGRTP & Australian Centre for Robotic Vision)
- 2016 Dean's Honours List (top 5%) Melbourne University School of Engineering
- 2015 Exchange Scholarship (MGSA, Melbourne University -> ETH Zürich)
- 2014 Dean's Honours List, Melbourne University Bachelor of Science

Publications <u>https://cedricscheerlinck.com/publications</u>

- 1. Z. Wang, Y. Ng, <u>C. Scheerlinck</u>, R. Mahony, "An Asynchronous Linear Filter Architecture for Hybrid Event-Frame Cameras", IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), September 2023.
- 2. Z. Wang, Y. Ng, <u>C. Scheerlinck</u>, R. Mahony, "An Asynchronous Kalman Filter for Hybrid Event Cameras", International Conference on Computer Vision (ICCV), October 2021.
- 3. <u>C. Scheerlinck</u>, "How to See with an Event Camera", Ph.D. Thesis, Australian National University, Canberra, Australia, 2021.
- L. Pan, R. Hartley, <u>C. Scheerlinck</u>, M. Liu, X. Yu, Y. Dai, "High Frame Rate Video Reconstruction based on an Event Camera", IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), November 2020.
- T. Stoffregen*, <u>C. Scheerlinck</u>*, D. Scaramuzza, T. Drummond, N. Barnes, L. Kleeman, R. Mahony, "Reducing the Sim-to-Real Gap for Event Cameras", European Conference on Computer Vision (ECCV), 2020.
- 6. <u>C. Scheerlinck</u>, H. Rebecq, D. Gehrig, N. Barnes, R. Mahony, D. Scaramuzza, "Fast Image Reconstruction with an Event Camera", Winter Conference on Applications of Computer Vision (WACV), 2020.
- <u>C. Scheerlinck</u>*, H. Rebecq*, T. Stoffregen, N. Barnes, R. Mahony, D. Scaramuzza, "CED: Color Event Camera Dataset", Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2019.
- 8. L. Pan, <u>C. Scheerlinck</u>, X. Yu, R. Hartley, M. Liu, Y. Dai, "Bringing a Blurry Frame Alive at High Frame-Rate with an Event Camera", Conference on Computer Vision and Pattern Recognition (CVPR), 2019. [**Oral** accept. rate 6%]
- 9. <u>C. Scheerlinck</u>, N. Barnes, R. Mahony, "Asynchronous Spatial Image Convolutions for Event Cameras", IEEE Robotics and Automation Letters (RAL), 4(2), April 2019, pp. 816-822. [Also presented at IEEE International Conference on Robotics and Automation (ICRA), 2019.]
- 10. <u>C. Scheerlinck</u>, N. Barnes, R. Mahony, "Continuous-time Intensity Estimation Using Event Cameras", Asian Conference on Computer Vision (ACCV), Perth, 2018, pp.308-324.
- <u>C. Scheerlinck</u>, C. Mamon, T. Zahtila, W. Nguyen, E. Poon, V. Thondapu, C. Chin, S. Moore, P. Barlis, & A. Ooi, "Effect of Medical Imaging Modalities on the simulated blood flow through a 3D reconstructed stented coronary artery segment", 20th Australasian Fluid Mechanics Conference (AFMC), Perth, 2016.

*Equal contribution.