

Denys Rozumnyi

Curriculum Vitae

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Education

- Sep 2019 – Present **ETH Zurich**, *PhD Student*, Supervisors: Prof. Marc Pollefeys, Dr. Martin Oswald, Computer Vision and Geometry Group, Zurich, Switzerland.
- Jul 2017 – **Czech Technical University in Prague**, *Master of Science (with honours)*, Specialisation: Computer Vision and Image Processing, Minor Specialisation: Artificial Intelligence, Average grade: 1.10/1.00, 11th best graduate of the Faculty of Electrical Engineering.
- Oct 2018 – **Technical University of Munich**, *Erasmus+ Student Exchange Programme*, Master of Science in Computer Science.
- Mar 2019
- Sep 2014 – Jun 2017 **Czech Technical University in Prague**, *Bachelor of Science (with honours)*, Specialisation: Computer Science, Minor Specialisation: Mathematics. Average grade: 1.08/1.00, 2nd best graduate of the Faculty of Electrical Engineering.
- Sep 2016 – Jan 2017 **Swansea University, Wales, United Kingdom**, *Erasmus+ Student Exchange Programme*, *Bachelor of Science in Computer Science*.
- Aug 2015 **Vision and Sports Summer School**, Prague, Czech Republic.

Work Experience

- Sep 2019 – Present **Research Assistant, Computer Vision and Geometry Group**, ETH Zurich, Switzerland. Topic: Fast moving objects detection [8,9]. Supervisors: prof. Marc Pollefeys, Dr. Martin Oswald.
- Mar 2018 – Present **Research Fellow, Centre for Machine Perception**, CTU in Prague, Czech Republic. Topic: Tracking exploiting blur [6,7,8,9]. Supervisor: prof. Jiří Matas.
- Jul 2018 – Aug 2018 **Student Summer Research Fellowship, ETH Zurich**, Zurich, Switzerland, accepted 15 students out of 1400 applications worldwide (acceptance rate around 1%). Topic: Semantic 3D reconstruction [5]. Supervisors: prof. Marc Pollefeys, Dr. Martin Oswald.
- Aug, Sep 2017 **Summer Internship, Tampere University of Technology**, Tampere, Finland. Topic: Creating real-time demo in C++ for fast moving objects detection: <https://github.com/rozumden/fmo-cpp-demo>. Supervisors: prof. Jiří Matas, prof. Joni Kämäräinen.
- Sep 2016 – Feb 2018 **Research Intern, Centre for Machine Perception**, CTU in Prague, Czech Republic. Topic: Detection and tracking of fast moving objects [2]. Supervisor: prof. Jiří Matas.
- Jul 2016 – Aug 2016 **Summer Internship, Tampere University of Technology**, Tampere, Finland. Topic: Detection and tracking of fast moving objects [2]. Supervisor: prof. Jiří Matas.
- Sep 2014 – Jun 2016 **Research Intern, Centre for Machine Perception**, CTU in Prague, Czech Republic. Topic: Coplanar repeated patterns detection in images [1]. Supervisors: James Pritts, doc. Ondřej Chum.

Awards

- May 2020 **Qualcomm Innovation Fellowship** Europe Finalist.
- Mar 2020 **First place in Werner von Siemens award for the best master thesis** in the Czech Republic. Highly selective, prestigious and well-known award.
- Sep 2019 **Best Paper Honorable Mention** at German Conference on Pattern Recognition 2019 [7]. News.

- Jun 2019 Master's degree with distinctions.
- Jan 2018 **Valeo scholarship** - two-year scholarship for exceptional master students at CTU sponsored by Valeo (multinational company for automotive driving).
- Jan 2018 **Upsilon Pi Epsilon** - lifetime membership in honour society Upsilon Pi Epsilon: International Honor Society for the Computing and Information Disciplines.
- Nov 2017 **Josef Hlávka's Award** (Cena Josefa Hlávky) – a highly prestigious award for best students and graduates in the Czech Republic. Awarded by The Foundation of Josef, Marie and Zdeňka Hlávka, the oldest Czech foundation established in 1904. Online: http://www.hlavkovanadace.cz/cinnost_2017.php
- Aug 2017 **Dean's Award** for an exceptional bachelor thesis. Bachelor's degree with distinctions. Faculty of Electrical Engineering, Czech Technical University in Prague.
- 2014-2019 Merit scholarships for excellent study results.

Demos and talks

- 23.09.2019 Alumni at Study in the CZ: <https://www.studyin.cz/alumni/254-denys-rozumnyi/>
- 22.09.2019 Invited interview with Honest Guide, Prague, Czech Republic. YouTube episode: <https://youtu.be/JaJY0mo-f18?t=218>
- 10.05.2019 CTU – Invited speaker, Prague, Czech Republic. YouTube: <https://youtu.be/95ekFuXtUsk>
- 28.08.2018 ETH Zurich – Talk at Computer Vision and Geometry Group presenting results of my internship [5], Zurich, Switzerland.
- 07.07.2018 EECVC'18 – Invited speaker at Eastern European Conference on Computer Vision, Odessa, Ukraine. YouTube: <https://youtu.be/mhyhNyg0IgU>. Website: <https://eecvc.com/speaker-4-columns-style-1/>
- 10.09.2017 Tampere University of Technology (TUT), Tampere, Finland. Demo and presentation showing and explaining fast moving objects detection.
- 23.07.2017 IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2017, Honolulu, Hawaii. Presented demo on fast moving objects.
- 14.06.2017 OI IntrO – introduction of Open Informatics programme at CTU for interested students. Presentation and demo on topic of fast moving objects.
- 26.04.2017 Enable-S3: WP3.1 Machine Learning Workshop in Prague – talk about fast moving objects at a small conference for professionals in the field of autonomous driving.

Contests

- Google Hash Code 2018 Online team programming competition. Team: OI Gang, Rank: 493 out of 4852.
- Kyiv City Olympiads Mathematical Olympiad: twice second place and twice third place in years 2010-2014. Physics Olympiad: once second place and once third place in years 2012-2014. Programming Olympiad: once second place and twice third place in years 2012-2014.

Master Thesis

- Title *All-speed Long-term Tracker Exploiting Blur*
- Supervisor prof. Jiří Matas
- Description The thesis focused on robust trajectory estimation of fast moving objects. Parts of the thesis were published at International Conference on Computer Vision 2019 [6] and German Conference on Pattern Recognition 2019 [7], where the paper was awarded the Best Paper Honorable Mention. The thesis won the first place in Werner von Siemens award for the best master thesis in the Czech Republic.

Languages

Fluent **English, Czech**
Native **Ukrainian, Russian**
Basic **German, French**

Publications

- [8] **D. Rozumnyi**, J. Kotera, F. Šroubek, J. Matas. *Sub-frame Appearance and 6D Pose Estimation of Fast Moving Objects*. In IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2020, Seattle, United States of America. Online: <https://arxiv.org/abs/1911.10927>
- [7] **D. Rozumnyi**, J. Kotera, F. Šroubek, J. Matas. *Non-Causal Tracking by Deblatting*. In 41th German Conference on Pattern Recognition (GCPR) 2019, Dortmund, Germany. Oral presentation, **Best Paper Honorable Mention**, announced here. Online: https://link.springer.com/chapter/10.1007/978-3-030-33676-9_9
- [6] J. Kotera, **D. Rozumnyi**, F. Šroubek, J. Matas. *Intra-frame Object Tracking by Deblatting*. In Visual Object Tracking (VOT) Workshop in conjunction with International Conference on Computer Vision (ICCV) 2019, Seoul, South Korea. Online: http://openaccess.thecvf.com/content_ICCVW_2019/papers/VOT/Kotera_Intra-Frame_Object_Tracking_by_Deblatting_ICCVW_2019_paper.pdf
- [5] **D. Rozumnyi**, I. Cherabier, M. Pollefeys, M. Oswald. *Learned Semantic Multi-Sensor Depth Map Fusion*. In 3D Reconstruction in the Wild (3DRW) Workshop in conjunction with International Conference on Computer Vision (ICCV) 2019, Seoul, South Korea. Online: http://openaccess.thecvf.com/content_ICCVW_2019/papers/3DRW/Rozumnyi_Learned_Semantic_Multi-Sensor_Depth_Map_Fusion_ICCVW_2019_paper.pdf
- [4] **D. Rozumnyi**. *All-speed Long-term Tracker Exploiting Blur*. Master thesis, Czech Technical University in Prague, 2019. Online: <https://dspace.cvut.cz/handle/10467/82560>
- [3] **D. Rozumnyi**. *Tracking, Learning and Detection over a Large Range of Speeds*. Bachelor thesis, Czech Technical University in Prague, 2017. Online: <https://dspace.cvut.cz/handle/10467/70179>
- [2] **D. Rozumnyi**, J. Kotera, F. Šroubek, L. Novotný, J. Matas. *The World of Fast Moving Objects*. In IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2017, Honolulu, Hawaii, United States of America. Online: <https://ieeexplore.ieee.org/document/8099997>
- [1] J. Pritts, **D. Rozumnyi**, M. P. Kumar, O. Chum. *Coplanar Repeats by Energy Minimization*. In the 27th British Machine Vision Conference (BMVC) 2016, York, England, United Kingdom. Online: <http://www.bmva.org/bmvc/2016/papers/paper107/index.html>

In review

- [9] **D. Rozumnyi**, J. Kotera, F. Šroubek, J. Matas. *Tracking by Deblatting*. Journal submission.