Olaf Wysocki

Tölzer Straße 25
81379 Munich, Germany
+49 176 76420220

Website: sites.google.com/view/olafwysocki
Email: olaf.wysocki@tum.de
LinkedIn: olaf-wysocki
GitHub: github.com/OloOcki

Education

Technical University of Munich — Munich, Germany
Doctoral Candidate, Photogrammetry & Remote Sensing Chair — Sep 2020–Present

- Thesis: Enrichment of 3D building models by facade elements based on point clouds and confidence values, Profs. Uwe Stilla and Thomas H. Kolbe

Technical University of Munich — Munich, Germany
M.Sc. in Geodesy & Geoinformation — Oct 2018–Sep 2020

- Thesis: Semantic-based Geometry Refinement of 3D City Models for Testing Automated Driving, Grade: 1.0, Prof. Thomas H. Kolbe
- Major: Geoinformatics, Cartography, Photogrammetry, Remote Sensing

Technical University of Crete — Chania, Greece
A semester within the Erasmus+ Programme — Oct 2016–Jan 2017

- Major: Geoinformatics, Photogrammetry

Wroclaw University of Science and Technology — Wroclaw, Poland
B.Eng. in Geodesy and Cartography — Oct 2015–Feb 2018

- Thesis: Visibility analysis for selected lookout towers in the Sudety Mountains, Grade: 1.0, Prof. Jan Blachowski
- Major: Geodesy, Cartography, GIS

Research Experience

Technical University of Munich — Munich, Germany
Research Associate — Sep 2020–Present

- Researching, investigating and applying a refinement strategy of semantic 3D building models enabling their geometric and semantic completeness improvement
- Initiating and managing the first-of-its-kind open repository of facade 3D point clouds fostering 3D facade segmentation research
- Presenting results at international conferences to scientists and practitioners
- Publishing and reviewing scientific findings in peer-reviewed journals and conference proceedings
- Enabling young researchers creating innovative 3D reconstruction solutions both individually and as a team

Audi AG — Ingolstadt, Germany
Master's Thesis Candidate in R&D — Mar 2020–Sep 2020

- Thesis: Semantic-based Geometry Refinement of 3D City Models for Testing Automated Driving, Grade: 1.0, Prof. Thomas H. Kolbe
- Researching and applying refinement methods of 3D city models using point clouds for testing automated driving functions

Audi AG — Ingolstadt, Germany
Intern in R&D — Aug 2019–Sep 2019

- Designing an approach to generate semantic 3D city models for autonomous driving simulations

Technical University of Munich — Munich, Germany
Graduate Research Assistant — Dec 2018–Mar 2020

- Investigating and applying 3D modeling approaches to create 3D landscape models at a cross-country scale

Professional experience

SHH — Wroclaw, Poland
GIS Specialist — Sep 2017–Jul 2018

- Developing a semantic 3D city model reconstruction workflow awarded as the most innovative solution of 2019 in Poland, and top-four city model worldwide
- Conducting tutorials for clients concerning 3D modelling, point clouds and image processing

SHH — Wroclaw, Poland
Intern — Jul 2017–Aug 2017

- Carrying out country-scale visibility analysis and visualizing results in a web-based 3D geoportal

Teaching experience

- **TUM Data Innovation Lab** — SS 2023
  Interdisciplinary Master's course, Technical University of Munich
- **Photogrammetry Project** — WS 2022/23
  Master's course, Technical University of Munich
- **Photogrammetry Selected Chapters** — WS 2020/21; WS 2022/23
  Master's course, Technical University of Munich
- **Point cloud processing** — SS 2022
  Erasmus+ Staff Mobility for Lecturers, Technion - Israel Institute of Technology
- **Photogrammetry Selected Topics** — SS 2022
  Master's course, Technical University of Munich

Mentorship

- **3 Master's Theses**
  Shuangyi Liu, Khairil Ariffin Bin Yahya, Thomas Froech
- **1 Bachelor's Thesis**
  Antonia Bieringer

- **12 students on Master's semester projects**
  Thomas Froech, Yue Tan, Tanja Pilz, Sophia Schwarz, Sara Dragicevic, Xinyue Yang, Xiaoyu Huang, Patrick Madlindl, Xinyuan Zhu, Yan-Ling Lai, Nguyen duc, Florian Hauck
- **17 students on Master's seminar projects**
  Srilakshmi Nagarajan, Shuo Shen, Sindhu Ramanath Tarekere, Tao Wu, Jiaqian Huang, Thomas Froech, Sevval Durmazbilek, Qixiang Yan, Tianyu Gong, Ian Solomon, Jianming Zhou, Sirui Wang, Anupam Kumar, Vincent Orth, Afreen Abdul Khaleel, Jayendra Praveen Kumar Chorapalli, Tianyi You
- **3 Graduate Research Assistants**
  Jiarui Zhang, Thomas Froech, Yue Tan

Peer-reviewed publications

- **Wysocki, O.**, Xia, Y., Wysocki M., Grilli, E., Hoegner, L., Cremers D., and Stilla, U. Scan2LoD3: Reconstructing semantic 3D building models at LoD3 using ray casting and Bayesian networks, *In: Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, 6547-6557, 2023*
- **Wysocki, O.**, Grilli, E., Hoegner, L. and Stilla, U. Combining visibility analysis and deep learning for refinement of semantic 3D building models by conflict classification, *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences, X-4/W2-2022, 289–296, https://doi.org/10.5194/isprs-annals-X-4-W2-2022-289-2022, 2022*
- **Wysocki, O.**, Hoegner, L. and Stilla, U. Refinement of semantic 3D building models by reconstructing underpasses from MLS point clouds, *International Journal of Applied Earth Observation and Geoinformation, 111, 2022, 102841, https://doi.org/10.1016/j.jag.2022.102841, 2022*
- **Wysocki, O.**, Hoegner, L. and Stilla, U. TUM-FAÇADE: Reviewing and enriching point cloud benchmarks for façade segmentation, *International Archives of the Photogrammetry, Remote Sensing Spatial Information Sciences, XLVI-2/W1-2022, 529–536, https://doi.org/10.5194/isprs-archives-XLVI-2-W1-2022-529-2022, 2022*
- **Wysocki, O.**, Xu, Y. and Stilla, U. Unlocking point cloud potential: Fusing MLS point clouds with semantic 3D building models while considering uncertainty, *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences, VIII-4/W2-2021, 45–52, https://doi.org/10.5194/isprs-annals-VIII-4-W2-2021-45-2021, 2021*
- **Wysocki, O.**, Schwab, B., Hoegner, L., Kolbe, TH. and Stilla, U. Plastic surgery for 3D city models: A pipeline for automatic geometry refinement and semantic enrichment, *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences, V-4-2021, 17–24, https://doi.org/10.5194/isprs-annals-V-4-2021-17-2021, 2021*

Scientific Reviewer

- ISPRS Journal of Photogrammetry and Remote Sensing — Mar 2023 –Present
- IEEE Geoscience and Remote Sensing Letters — Feb 2023 –Present
- International Journal of Applied Earth Observation and Geoinformation — Nov 2022 –Present

Scholarships and Awards

- Runner-up: Best poster presentation, the 3D GeoInfo 2022 conference, Sydney, Australia — Oct 2022
- Deutscher Akademischer Austauschdienst (DAAD) Study Scholarships for Graduates — Aug 2018
- Rector's Scholarship for high grade average and achievements in the scientific area — Sep 2017
- 1st place: Best oral paper presentation, the 15th Students' Science Conference, Jelenia Gora, Poland — Sep 2017
- 1st place: Competition, "The Lower Silesian Voivodeship on map composition" — Jun 2017

Selected projects

tum2twin [Link] — Munich, Germany
Scientific Lead — Feb 2023–Present

- Supervising a research project delivering high-grade semantic 3D data benchmark for validating 3D reconstruction algorithms

CityGML2OBJ 2.0 [Link] — Munich, Germany
Scientific Lead — Feb 2023–Present

- Managing a project providing free and open source software for research and development of city models

TUM Data Innovation Lab Project [Link] — Munich, Germany
Scientific Lead — Jan 2023–Present

- Leading a research project aiming to close a domain gap between synthetic and real point clouds of cities for semantic 3D segmentation

Awesome CityGML [Link] — Munich, Germany
Designer — Jan 2021–Present

- Initiating an open source project aiming to collect all available open data 3D city models and related software to foster 3D model's research

TUM-FAÇADE [Link] — Munich, Germany
Designer — Dec 2021–Present

- Managing and designing a research project delivering an open and novel point cloud facade segmentation benchmark

TUM-Playground — Munich, Germany
Designer — Jun 2022–Present

- Initiating a data harmonization project involving interdisciplinary academics

TUM Hyperloop [Link] — Munich, Germany
GIS Specialist — Nov 2019–Apr 2020

- Designing 3D landscape model reconstruction in a multidisciplinary team contributing to the path planning of the TUM Hyperloop pod

Skills

- **Designing** machine learning and deterministic point cloud 3D reconstruction algorithms adhering to mapping standards (CityGML, OpenDRIVE)
- **Developing** solutions in Python (Open3D, NumPy, Pandas, OpenCV, PyTorch, TensorFlow), Unreal Engine (CARLA, AirSim), FME, and QGIS
- **Communicating** effectively findings in written and verbal forms to academic and industry partners
- **Leading** teams of academics to pursue a common goal

Languages

- **English:** Full professional proficiency
- **German:** Professional working proficiency
- **Polish** Native proficiency

Certificates

- FME Certified Professional Certificate — Apr 2021
- MicroStation Everything 3D V8i | fr | Base Release — Apr 2018

Voluntary Activities

- IEEE Young Professionals — Apr 2023–Present
  Participating in the dynamic network advancing technology for the benefit of humanity
- Doctoral Candidate Representative — Oct 2021–Sep 2022
  Representing approximately 2000 doctoral candidates
- Ged Kids into Survey — Mar 2021–Present
  Disseminating knowledge about surveying to younger generations
- Leonhard Obermeyer Center — Sep 2020–Present
  Fostering a collaboration between industry and academia for the built environment
- Runder Tisch GIS e.V. — Oct 2019–Present
  Reporting current trends in the geospatial domain at the INTERGEO conference
- Scientific Research Club GIS — Jan 2017–Feb 2018
  Participating in conferences and workshops for young academics
- Movie Discussion Club University of Technology — May 2015–Dec 2016
  Organizing meeting with artists, film screenings, and lectures