



## Olaf Wysocki

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**ORCID**: <https://shorturl.at/Ho1hL> **GitHub**: <https://github.com/OloOcki>

**Date of birth**: 30/01/1995 **Nationality**: Polish

### ABOUT ME

My passion for driving innovation pushed me to expand the boundaries of photogrammetry, remote sensing, computer vision, and machine learning, as underscored by numerous publications in esteemed journals and conferences of ISPRS and CVPR. I excel in collaborating with interdisciplinary and international teams with the top universities such as Oxford University and the National University of Singapore. My profile is complemented by a proven excellence in supervising young academics, inspiring them to succeed academically. My scientific passion has been recognized by DAAD's master's scholarship and at scientific conferences, where I proudly represent Professorship of Photogrammetry and Remote Sensing, Technical University of Munich.

### EDUCATION AND TRAINING

[ 10/2020 – 10/2024 ]

#### Doctor of Engineering in Photogrammetry & Remote Sensing

*Prof. Uwe Stilla and Prof. Thomas H. Kolbe, Technical University of Munich* <https://www.tum.de/en/>

**City**: Munich | **Country**: Germany | | **Level in EQF**: EQF level 8 | **Thesis**: Enrichment of 3D Building Models by Facade Elements Based on Point Clouds and Confidence Value

[ 10/2018 – 09/2020 ]

#### Master of Science in Geodesy & Geoinformation

*Prof. Thomas H. Kolbe, Technical University of Munich* <https://www.tum.de/en/>

**City**: Munich | **Country**: Germany | | **Level in EQF**: EQF level 7 | **Thesis**: Semantic-based geometry refinement of 3D city models for testing automated driving, Grade: 1.0 (very good)

[ 10/2015 – 02/2018 ]

#### Bachelor of Engineering in Geodesy & Cartography

*Prof. Jan Blachowski, Wroclaw University of Science and Technology* <https://pwr.edu.pl/en/>

**City**: Wroclaw | **Country**: Poland | | **Level in EQF**: EQF level 6 | **Thesis**: Visibility analysis for selected lookout towers in the Sudety Mountains, Grade: 5.0 (very good)

[ 09/2016 – 01/2017 ]

#### Semester exchange (Erasmus+)

*Technical University of Crete* <https://www.tuc.gr/en/home>

**City**: Chania | **Country**: Greece | | **Level in EQF**: EQF level 6

### WORK EXPERIENCE

[ 09/2023 – Current ]

#### Senior Research Associate

*Photogrammetry and Remote Sensing, Technical University of Munich*

**City**: Munich | **Country**: Germany

- Leading an interdisciplinary team of researchers at the intersection of geoinformatics, photogrammetry, computer vision, and machine learning research
- Securing funding for two PhD candidates focusing on uncertainty prediction in mobile mapping point clouds (Nerf2BIM, AI4UPC)
- Employing a PhD candidate in leveraging neural radiance fields for 3D reconstruction of a built environment
- Establishing international collaborations on 3D reconstruction with top universities, such as National University of Singapore (ReLoD3)

- Mentoring young academics in scientific work, leading to publishing top scientific papers
- Initiating and leading the tum2twin project focusing on the development of the novel benchmark dataset for the state-the-art 3D urban reconstruction (AEC/GIS)

[ 09/2020 – 09/2023 ] **Research Associate**

*Photogrammetry and Remote Sensing, Technical University of Munich*

**City:** Munich | **Country:** Germany

- Introducing high-detail and uncertainty-aware 3D building reconstruction methods enabling up to 20% increase of reconstruction accuracy by leveraging machine learning solutions
- Collaborating with automotive domain experts on solving their real-world problems and translating them into research challenges
- Enabling young researchers creating innovative 3D reconstruction solutions both individually and as a team leading to scientific publications
- Initiating and managing first-of-its-kind open repositories of urban 3D training benchmark datasets
- Publishing and presenting results to scientific and non-scientific audience achieving 90% higher research interest than related academics

[ 09/2017 – 07/2018 ] **GIS Specialist**

*SHH*

**City:** Wroclaw | **Country:** Poland

- Developing the [TOP 4 worldwide](#) semantic 3D city model GIS system for the city of Poznan, Poland
- Designing a CityGML-compliant 3D city model reconstruction workflow awarded by the Polish Minister of Investment and Development as the most innovative solution of 2019

## INTERNSHIPS

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[ 03/2020 – 09/2020 ] **Master's Thesis Candidate, Audi AG**

- Title: Semantic-based Geometry Refinement of 3D City Models for Testing Automated Driving, Grade: 1.0, Prof. Thomas H. Kolbe

[ 08/2019 – 10/2019 ] **Intern in R&D, Audi AG**

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

[ 12/2018 – 03/2020 ] **Student Research Assistant, Technical University of Munich**

- Implementing 3D modeling approaches to create virtual environments in a game engine for autonomous driving simulations
- Creating a workflow generating semantic cross-country 3D landscape models

## RESEARCH STAYS

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[ 05/2024 – 06/2024 ] **Visiting Researcher, National University of Singapore, Singapore**

- Establishing research exchange between the groups of Photogrammetry and Remote Sensing, and [Engineering Geodesy](#) of TUM with the [group of Prof. Biljecki](#)
- Organizing workshops devoted to urban digital twinning with the invited guests of involved groups
- Acquiring 3D scans and preparing dataset focused on the Singapore architecture

[ 08/2023 – 09/2023 ] **Visiting Researcher, University of Nottingham, UK**

- Establishing research exchange between our group and the [group of Prof. Marsh](#)
- Developing facade semantic segmentation dataset focused on the Victorian architecture

[ 09/2022 – 09/2022 ] **Visiting Researcher, Technion - Israel Institute of Technology, Israel**

- Establishing teaching and research exchange between our group and the [group of Prof. Filin](#)
- Conducting guest lectures on point cloud processing for the graduates at Technion

## FUNDING ACQUISITION

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- [ 08/2024 ] **Nerf2BIM: TUM Georg Nemetschek Institute Artificial Intelligence for the Built World (accepted)**
- 2m EUR four years' funding for three PhDs with one student per PI
  - Interdisciplinary project of three TUM Chairs ([Engineering Geodesy](#), [Architectural Informatics](#), [Visual Computing & Artificial Intelligence](#)) concentrating on AI in the built environment
- [ 01/2024 ] **ReLoD3: TUM Global Incentive Fund (accepted)**
- 7k EUR international exchange funding for the joint 'ReLoD3' project with our team and Engineering Geodesy Chair, and Prof. Biljecki's lab, NUS, Singapore
- [ 12/2023 ] **AI4UPC: Leonhard Obermeyer Center Scholarship (accepted)**
- 100k EUR for three years' funding for a supervised PhD in the area of point cloud uncertainty prediction
- [ 05/2023 ] **TUM Internationalization Fund (accepted)**
- 3k EUR personal funding for research stay at the University of Nottingham & travel to CVPR '23
- [ 05/2022 ] **Erasmus++ For Staff (accepted)**
- 3k EUR funding for outside-EU teaching exchange with Prof. Filin's group, Technion, Israel

## TEACHING

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- [ 04/2024 – Current ] **Point Cloud Processing, SS 2024**
- Lecture about theory and practice of point cloud acquisition, registration, semantic segmentation, and 3D reconstruction, Master's course, Technical University of Munich
- [ 09/2022 – 09/2022 ] **Point Cloud Processing SS 2022**
- Crash course about theory and practice of point cloud acquisition, registration, semantic segmentation, and 3D reconstruction, Erasmus+ Staff Mobility for Lecturers, Technion - Israel Institute of Technology
- [ 04/2022 – 07/2022 ] **Photogrammetry Selected Topics SS 2022**
- Interactive seminar focusing on analyzing the state-of-the-art methods of photogrammetry and computer vision, Master's course, Technical University of Munich
- [ 10/2020 – Current ] **Photogrammetry Selected Chapters WS 2020/21; WS 2022/23; WS 2023/24**
- Interactive seminar focusing on analyzing the state-of-the-art methods of photogrammetry and computer vision, Master's course, Technical University of Munich

## SUPERVISION

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- [ 03/2023 – 08/2023 ] **TUM Data Innovation Lab, SS 23**
- Five students working on generating synthetic point clouds of real cities for semantic road space segmentation ([followed by a scientific publication](#)) within the interdisciplinary semester project, Master's course, Technical University of Munich
- [ 10/2022 – Current ] **Photogrammetry Project, WS 22/23; WS 23/24**
- Seven student groups developing methods concerning 3D model texturing, image semantic segmentation, 3D building reconstruction, model-driven reconstruction, 3D facade reconstruction ([followed by a scientific publication](#)), point-to-point information transfer ([follo](#)

[wed by a scientific publication](#)), point cloud semantic segmentation ([followed by a scientific publication](#))

[ 03/2022 – Current ] **Supervised theses**

- Vehicle detection in aerial images using neural networks with synthetic training data, Liu S., [M.Sc. thesis](#)
- Inpainting of unseen façade objects using deep learning methods, Froech, T., [M.Sc. thesis \(followed by a scientific publication\)](#)
- Facade segmentation using neural networks and building model conflicts, Yahya, KAB., M.Sc. thesis;
- Evaluation of the effect of enriched facade models on image-based localization of vehicles, Bieringer, A., [B.Sc. thesis \(followed by a scientific publication\)](#)
- 3D reconstruction of street view scenarios using a single monocular camera, Tan, Y., [M.Sc. thesis](#) (scientific publication in preparation)
- 3DCities: Evaluating 3D building reconstruction tools using point clouds, Huang, C. B.Sc. thesis (ongoing)
- Self-supervised radar-image learning for 6G sensing with prior information from semantic 3D city models, Luo, Y., M.Sc. thesis, (ongoing)

[ 02/2021 – Current ] **Supervised Student Research Assistants**

- Four students within the ReLoD3 project researching topics concerning 3D building reconstruction ([honorable mention at CVPRW S23DR challenge](#) Tang, W., Li, W.,) texturing, and point cloud registration.
- One student democratizing usage of semantic city models ([CityGML2OBJ v2 open source tool](#))
- Three students supporting creation of the first-of-its-kind facade segmentation dataset ([TUM-FACADE](#))

## CONFERENCES AND SEMINARS

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[ 03/11/2023 ] **Speaker, Leonhard Obermeyer Center Center Day 2023** Munich, Germany

- Semantic 3D building reconstruction at level of detail 3 using mobile mapping data

**Link:** <https://www.ed.tum.de/loc/events/center-day/>

[ 14/09/2023 ] **Speaker, 18th International 3DGeoInfo Conference** Munich, Germany

- MLS2LoD3: Refining low LoDs building models with MLS point clouds to reconstruct semantic LoD3 building models

**Link:** <https://www.3dgeoinfo.org/3dgeoinfo/>

[ 06/09/2023 ] **Keynote Speaker, Ordnance Survey 3D PhD Programme** Southampton, United Kingdom

- Building reconstruction using point clouds

[ 19/06/2023 ] **Speaker, Photogrammetric Computer Vision Workshop, in conjunction with IEEE/CVF Conference on Computer Vision and Pattern Recognition 2023**

Vancouver, Canada

- Scan2LoD3: Reconstructing semantic 3D building models at LoD3 using ray casting and Bayesian networks

**Link:** <https://photogrammetric-cv-workshop.github.io/program.html>

[ 15/06/2023 ] **Speaker, Conference of PhD Students and Young Scientists** Wroclaw, Poland

- Reconstructing LoD3 building models using ray casting and semantic segmentation

**Link:** <https://cpsys.pwr.edu.pl/home/>

- [ 22/03/2023 ] **Speaker, The 43rd scientific and technical annual conference of the German Society for Photogrammetry, Remote Sensing and Geoinformation (DGPF)** Munich, Germany
- Enriching 3D building models using point cloud geometry and image semantic
- Link:** <https://dgpf.de/con/jt2023.html>
- [ 30/11/2022 ] **Speaker, ASAM International Conference 2022** Dresden, Germany
- Plastic surgery of 3D building models for testing automated driving
- Link:** <https://www.asam.net/conferences-events/detail/asam-international-conference-2022/>
- [ 21/10/2022 ] **Speaker, 7th Smart Data Smart Cities and 17th 3D GeoInfo Joint International Conference** Sydney, Australia
- Combining visibility analysis and deep learning for refinement of semantic 3D building models by conflict classification
- Link:** <https://www.sdsc3dgeoinfo.unsw.edu.au/>
- [ 10/06/2022 ] **Speaker, XXIVth ISPRS Congress** Nice, France
- Plastic surgery for 3D city models: A pipeline for automatic geometry refinement and semantic enrichment
- Link:** <https://www.isprs2022-nice.com/>
- [ 13/05/2022 ] **Speaker, PhD Colloquium of the DGK Section on Geoinformatics 2022** Braunschweig, Germany
- Enriching 3D building models by facade elements based on point clouds and confidence intervals
- Link:** <https://easychair.org/cfp/dgkgeoinfo2022>
- [ 03/03/2022 ] **Speaker, 9th International Workshop 3D-ARCH** Mantova, Italy
- TUM-FACADE: Reviewing and enriching point cloud benchmarks for facade segmentation
- Link:** <https://www.sitech-3dsurvey.polimi.it/?p=3303>
- [ 11/10/2021 ] **Speaker, 16th 3D GeoInfo Conference 2021** New York, United States of America
- Unlocking point cloud potential: Fusing MLS point clouds with semantic 3D building models while considering uncertainty
- Link:** <https://3dgeoinfo2021.github.io/>

[ 07/10/2021 – 08/10/2021 ] **Co-organizer, TUM-DLR-Summer School 2021** Munich, Germany

- Co-organizing interdisciplinary summer school involving German Aerospace Center, and the TUM Chairs of Photogrammetry and Remote Sensing, Data Science in Earth Observation, Remote Sensing Technology.

## HONOURS AND AWARDS

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- [ 10/2024 ] **Best oral presentation, ISPRS Symposium, Perth, Australia Awarding institution:** International Society for Photogrammetry and Remote Sensing (ISPRS)
- [ 10/2022 ] **Runner-up: Best poster presentation, the 3D GeoInfo 2022 conference, Sydney, Australia Awarding institution:** 3D GeoInfo 2022 conference committee
- [ 08/2018 ] **Study Scholarships for Graduates of All Disciplines, 2018/19 Awarding institution:** Deutscher Akademischer Austauschdienst (DAAD)
- [ 09/2017 ] **Rector's Scholarship for high grade average and achievements in the scientific area Awarding institution:** Wroclaw University of Science and Technology
- [ 09/2017 ] **Best oral paper presentation, the 15th Students' Science Conference, Jelenia Gora, Poland Awarding institution:** Wroclaw University of Science and Technology

## NETWORKS AND MEMBERSHIPS

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[ 01/2019 – Current ] **Runder Tisch GIS** Munich, Germany

- Networking and sharing expertise with scientists, practitioners, and governmental institutes concerning the geospatial field

**Link:** <https://www.rundertischgis.de/>

[ 09/2020 – Current ] **Leonhard Obermeyer Center (LOC)** Munich, Germany

- Networking and contributing expertise to the think-tank of scientists and practitioners
- Representing the researchers' team of Professorship of Photogrammetry and Remote Sensing, TUM

**Link:** <https://www.ed.tum.de/en/loc/home/>

[ 03/2021 – Current ] **Get Kids Into Survey** Munich, Germany

- Educating young people about geospatial technologies

**Link:** <https://www.getkidsintosurvey.com/>

[ 04/2023 – Current ] **IEEE Graduate Member** Munich, Germany

- Networking and sharing expertise with scientists

## SCIENTIFIC REVIEWER

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[ 10/2024 – Current ] **IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)**

- [TOP 9 in computer vision](#), IF: 9.7, h5: 109

[ 05/2024 – Current ] **British Machine Vision Conference (BMVC)**

- [TOP 14 in computer vision](#), IF: 9.5, h5: 65

[ 06/2023 – Current ] **IEEE Transactions on Geoscience and Remote Sensing**

- [TOP 3 in remote sensing](#), IF: 7.5, h5: 141

[ 03/2023 – Current ] **ISPRS Journal of Photogrammetry and Remote Sensing**

- [TOP 4 in remote sensing](#), IF: 10.6, h5: 104

[ 02/2023 – Current ] **IEEE Geoscience and Remote Sensing Letters**

- [TOP 5 in remote sensing](#), IF: 4, h5: 83

[ 11/2022 – Current ] **International Journal of Applied Earth Observation and Geoinformation**

- [TOP 7 in remote sensing](#), IF: 7.6, h5: 80

## VOLUNTEERING

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[ 05/2024 – Current ] **Visual Investigations Between Advocacy, Journalism, and Law** Munich, Germany

- Contributing with photogrammetry and computer vision knowledge to create an art exhibition on pressing intertwined issues of technology and society
- Disseminating the technical expertise to art students and art creators

**Link:** <https://shorturl.at/SpxT9>

[ 10/2021 – 09/2022 ] **Doctoral Representative** Munich, Germany

- Representing over 2000 doctoral candidates of the TUM School of Engineering and Design

[ 01/2021 – Current ] **Awesome CityGML** Munich, Germany

- Initializing a community project aiming at collecting all open data semantic 3D city models

**Link:** <https://github.com/OloOcki/awesome-citygml>

[ 09/2019 – Current ] **Trend Analysis** Munich, Germany

- Researching current geospatial interviews at the biggest venue in the field: INTERGEO
- Supporting young researchers in conducting interviews
- Collating trends in a form of an annual report

**Link:** <https://shorturl.at/RQwrO>

[ 09/2019 – 04/2020 ] **TUM Hyperloop** Munich

- Contributing the geospatial expertise into the innovative large-scale hyperloop route planning of the TUM

**Link:** <https://tumhyperloop.com/>

## DIGITAL SKILLS

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### My Digital Skills

Pytorch, Tensorflow | ETL: FME | Git | Numpy, pandas, matplotlib, Tensorflow | Deep Learning | OpenCV | Machine Learning | Computer Vision | Python | Data Science | Open3D / PCL | LIDAR, Photogrammetry, and UAV sensors and platforms | CARLA Simulator | QGIS | Bentley Microstation | SketchUP (3D modelling)

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## COMMUNICATION AND INTERPERSONAL SKILLS

### Public speaking

- Presenting team's and own work at professional and academic conferences

### Communication

- Communicating effectively findings in written and verbal forms to academic and industry partners

### Leadership

- Leading teams of young academics and peers to pursue a common goal
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## LANGUAGE SKILLS

**Mother tongue(s):** Polish

**Other language(s):**

### English

**LISTENING C2 READING C2 WRITING C2**

**SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2**

### German

**LISTENING B2 READING B2 WRITING B2**

**SPOKEN PRODUCTION B2 SPOKEN INTERACTION B2**

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*