Proposal for ISPRS Technical Commission II "Photogrammetry" (2022 - 2026)

By

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Introduction

Technical Commission (TC) II on Photogrammetry focuses on geometric, radiometric, and multi-temporal aspects of image and range-based surveying and modeling at various scales ranging from terrestrial to satellite sensing. Specifically, technical commission II is interested in

- Sensor orientation,
- Mapping and autonomy,
- Point cloud generation and processing,
- 2D and 3D feature extraction,
- Semantic scene understanding,
- Sensor fusion and data fusion,
- Sensor characterization,
- Machine learning (ML) and Artificial Intelligence (AI) for big geospatial data.

Applications in terrestrial and underwater mapping, autonomous navigation, industrial applications, cultural heritage applications, and space applications are considered.

With the rise in research and applications on platform autonomy for various tasks, including point cloud generation, mapping, semantic scene understanding, and navigation, TCII expands its focus by introducing AI/ML into its core components of comprehensive geospatial data generation and exploitation. The proposed internal structure is designed along with this systemic approach.

Commission Structure

The past several years have shown the importance of the photogrammetric approach to surveying problems and applications requiring precise sensor positioning, especially in the context of autonomous navigation, underwater mapping, and semantic scene labeling. The increase in the application space started to drive the research in topics including but not limited to sensor and data fusion, scene understanding, point cloud generation, and analysis.

Each of the aspects mentioned above has its inherent scientific challenges, which we intend to tackle by the following working group structure (officers with * indicate that they have served during the 2016-2022 term). In preparing the proposed structure, we have extended our efforts to ensure representation and leadership of our female colleagues.

The officer names listed in the following structure have already been confirmed to serve as officers with the proposed WG structure:

1. Sensor orientation and sensor fusion
    a. Ronny Hänsch*, rww.haensch@gmail.com , Germany
    b. Ewelina Rupnik, Ewelina.Rupnik@ign.fr , France
    c. Petra Helmhotz, petra.helmholz@curtin.edu.au , Australia
2. Point cloud acquisition and processing
    a. Norbert Haala*, norbert.haala@ifp.uni-stuttgart.de , Germany
    b. Jan Boehm*, j.boehm@ucl.ac.uk , United Kingdom
    c. Bisheng Yang*, bshyang@whu.edu.cn , China
3. 3D scene reconstruction for modeling & mapping
    a. Franz Rottensteiner* (chair), rottensteiner@ipi.uni-hannover.de , Germany
    b. Ksenia Bittner*, Ksenia.Bittner@dlr.de , Germany

     c.   Friedrich Fraundorfer, fraundorfer@icg.tugraz.at , Austria
4. AI/ML for Geospatial Data
     a.   Ribana Roscher* (chair), ribana.roscher@uni-bonn.de , Germany
     b.   Devis Tuia*, devis.tuia@epfl.ch , Switzerland
     c.   Jefersson dos Santos, jefersson@dcc.ufmg.br , Brazil
5. Temporal Geospatial Data Understanding
     a.   Charlotte Pelletier (chair), charlotte.pelletier@univ-ubs.fr , France
     b.   Michael Ying Yang*, michael.yang@utwente.nl , Netherlands
6. Cultural Heritage Data Acquisition and Processing
     a.   Fulvio Rinaudo*, fulvio.rinaudo@polito.it , Italy
     b.   Charalampos (Harry) Georgiadis, harrisg@civil.auth.gr , Greece
     c.   Susana del Pozo, s.p.aguilera@usal.es , Spain
7. Underwater Data Acquisition and Processing
     a.   Fabio Menna*, fmenna@fbk.eu , Italy
     b.   Dimitrios Skarlatos*, dimitrios.skarlatos@cut.ac.cy , Cyprus
     c.   Erica Nocerino, enocerino@uniss.it , Italy
8. Environmental & Infrastructure Monitoring
     a.   Vladimir Knyaz*, knyaz@gosniias.ru , Russia
     b.   Zhenfeng Shao, 00007853@whu.edu.cn , China

We propose that each working group provide at least one contest by benchmarking and data generation for the problem of interest as a part of their activities. The list will be supplemented with a small number of intercommission working groups. This issue will be discussed at the Nice at the ISPRS Congress in June 2022.

Commission Officers

President: Prof. Alper Yilmaz, The Ohio State University, USA

Vice-President: Prof. Jan Dirk Wegner, University of Zurich, Switzerland

Secretary: Assoc. Prof. Rongjun Qin, The Ohio State University, USA

Short Biographies

Alper Yilmaz is Professor with appointments in Civil Environmental and Geodetic Engineering and Computer Science and Engineering (courtesy) Departments at The Ohio State University. He has been inducted to the U.S. National Academy of Inventors in 2020, is a Fellow of the American Society for Photogrammetry and Remote Sensing (ASPRS) and is a senior member of IEEE. Dr. Yilmaz is currently interim president for the ISPRS Technical Commission II. He is serving as the Editor-In-Chief for the Photogrammetric Engineering and Remote Sensing Journal. He has served as Associate Editor for the Computer Vision and Image Understanding Journal between 2014 and 2016 and the Machine Vision and Applications Journal between 2006 and 2011.

Dr. Yilmaz's research focuses on biomimetic navigation systems for unmanned systems, mining anomalies in multi-physics and multi-dimensional data for surveillance and learning geospatial information for scene understanding. On these topics, he has organized a number of conferences in the fields of Photogrammetry, Remote Sensing and Computer Vision. Dr. Yilmaz's research has received over $13M in extramural funding from NASA, NSF, DOD, DOE, and industry

which resulted in over 190 publications and patents that received over 12,000 citations (according to Google Scholar).

Based on a recent study from Stanford University and Elsevier (published on October 19, 2021[1]), Dr. Yilmaz is listed among the top 2% most cited researchers in the fields of "Artificial Intelligence & Image Processing" and "Geological & Geomatics Engineering" in both career-long (1960-2021) and single year (2021) categories. The ranking covers 22 major fields and 176 subfields.

Dr. Yilmaz has been awarded the Outstanding Service Award (ASPRS) in 2022, Innovator of Year (OSU) in 2020, Presidential Citation (ASPRS) in 2019, honorable mention for the Masao Horiba Award (Japan) in 2016, the Lumley Interdisciplinary Research Award (OSU) in 2015, and the Lumley Research Award (OSU) in 2012. He has advised 23 PhD and 15 M.Sc. students to completion on topics ranging from photogrammetry, machine learning and computer vision who have found position in prominent academic institutions, industry, and the government.

Jan Dirk Wegner holds the "Data Science for Sciences" chair at the Institute for Computational Science, University of Zurich, as an Associate Professor and is head of the EcoVision Lab at ETH Zurich. Jan was PostDoc (2012-2016) and senior scientist (2017-2020) in the Photogrammetry and Remote Sensing group at ETH Zurich after completing his Ph.D. (with distinction) at Leibniz Universität Hannover in 2011. His main research interests are at the frontier of machine learning, computer vision, and remote sensing to solve scientific questions in the environmental sciences and geosciences. Jan was granted multiple awards, among others an ETH Postdoctoral fellowship and the science award of the German Geodetic Commission. He was selected for the WEF Young Scientist Class 2020 as one of the 25 best researchers worldwide under the age of 40 committed to integrating scientific knowledge into society for the public good. Jan is interim vice-president of ISPRS Technical Commission II, chair of ISPRS II/WG 6 "Large-scale machine learning for geospatial data analysis", director of the Ph.D. graduate school "Data Science" at the University of Zurich, and his professorship is part of the Digital Society Initiative at the University of Zurich. Together with colleagues, Jan is chairing the CVPR EarthVision workshops.

Rongjun Qin is an associate professor in the Department of Civil, Environmental and Geodetic Engineering (in Geoinformation), and Department of Electrical and Computer Engineering (in Computer Vision), he is also a core faculty member at the Translational Data Analytics Institute at OSU. Dr. Qin is in math by training from Wuhan University and received his Ph.D. in Photogrammetry and Remote Sensing from ETH, Zurich. He specialized in satellite photogrammetry, machine-learning based object recognition, and land-cover classification. He is the author of the RPC stereo processor (RPC), a satellite photogrammetry package that produces large-scale and high-quality digital surface models for multi-view satellite images, currently supporting multiple on-demand 3D terrain data generation tasks for several agencies.

Dr. Qin is an associate editor for the ISPRS Journal of Photogrammetry and Remote Sensing, and the Photogrammetric Engineering and Remote Sensing journal. He is also chairing the working group "Satellite Constellation for Remote Sensing" of the International Society for

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[1] https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/3

Photogrammetry and Remote Sensing Commission (2016-2022). He is also an IEEE Senior Member. His awards include the first prize of Mathematical Modeling Contest 2009, winner of IARPA Topcoder challenge in multi-view satellite 3D and IEEE Data Fusion Contest 2019, and the Lumley Research Awards from The Ohio State University.

The proposed officers cover a balanced scientific and academic background that bring broad experience in various fields into the technical commission.

Thematic goals

With the above structure, the commission presidents want to support scientific advancement in the following fields:

- Next-generation sensor integration and calibration strategies with potential swarm mapping techniques
- 3D point cloud generation, labeling, segmentation, and augmentation by deep learning strategies such as graph neural networks, etc.
- New and resilient approaches to 3D scene recovery, mapping with applications in autonomous navigation and swarm navigation
- Introduction of reinforcement learning to geospatial and geo-temporal problems
- Novel applications of photogrammetry in cultural heritage, underwater mapping and infrastructure monitoring.
- Dataset curation, competitions, and benchmarking for each proposed WG. Results are expected to be published in ISPRS journals,

Events:

The Symposium will be held during the summer/fall of 2024. The Symposium venue will probably be in one of the three cities Denver CO, Washington DC, or Las Vegas NV, with optimum flight connections to each city from around the world. so that international participants will have flexible and easy traveling options. The choice of the city will be based on the joint conference we will hold jointly with Pecora Conference or the UAV Expo.

We intend to organize the TCII Symposium technical sessions in a single-track fashion to support maximum information, interaction, and communication. To allow the presentation and publication of "cutting edge" technical papers and early concepts or latest, highly application-relevant results, we plan two submission possibilities: full papers to be assessed by peer-reviewing for ISPRS Annals and reviewing based on abstracts for ISPRS Archives.

Together with the symposium, several one- or half-day workshops and tutorials with a particular focus on young scientists and practitioners from industry and governmental agencies will be organized. These additional activities shall include, for instance, tutorials and workshops on topics of interest to all parties.

The interaction between science and industry will be further supported by a joint exhibition with the sister event and possibilities for demos and master classes of internationally leading companies in sensing and processing geospatial information.

Further activities:

The commission will furthermore contribute to other ISPRS events such as

- Geospatial Week 2023 and 2025,
- EuroCOW
- PIA (Photogrammetric Image Analysis),
- HRIGI (High Resolution Imaging for Geospatial Information),
- CMRT (City Models, Roads and Traffic)

and others. The detailed set-up will be discussed with the other commission presidents and workshop organizers.

In addition, special emphasis will be put on the interaction with sister communities like IEEE Geoscience and Remote Sensing as well as other communities to better interdigitate the sensorial developments with data processing and analysis methods. The working group officers of TCII will be encouraged to organize joint ISPRS and IEEE events such as workshops at IGARSS, IEEE EarthVision workshop, etc.

The new TCII will start an invited seminars on a quarterly basis. The seminars will be given by pioneering researchers in the field of photogrammetry, computer vision and remote sensing. We will have each working group proposing names for the seminar and have the working groups arrange the talk which we will then be announced through ISPRS channels.

All organization issues and publications will be done according to the ISPRS policies as stated in the IRPSR Orange book.

Provisional financial plan

The commission will support communication via digital media wherever possible to reduce costs and increase exposure.

A very first estimate of the financial budget for the symposium suggests a total revenue of $85K-$110K, including all costs for staff, proceedings, rental of conference rooms with AV equipment, exhibition areas, and catering.

Based on a very conservative sponsorship expectation, this estimate results in a regular registration fee of $500 to $650 (depending on the type of registration, e.g., with/out. workshops, tutorials, dinner, etc.).

Special discounts and travel awards are planned for undergraduate and graduate students to foster meet-ups with renowned scientists.

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Curriculum Vitae
Alper Yilmaz, PhD

Professor
Civil, Environmental and Geodetic Engineering
The Ohio State University, 470 Hitchcock Hall, 2070 Neil Avenue, Columbus, OH 43210
yilmaz.15@osu.edu , https://u.osu.edu/pcvlab

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Online Professional Profiles

Google Scholar	https://scholar.google.com/citations?user=MeQC1XYAAAAJ&hl=en
LinkedIn	https://www.linkedin.com/in/alper-yilmaz-b745761
Research Gate	https://www.researchgate.net/profile/Alper_Yilmaz3
Semantic Scholar	https://www.semanticscholar.org/author/Alper-Yilmaz/1858702

Positions

6/2018 – present	**Founder, Board Member, CTO**, Ubihere Inc.
6/2017 – present	**Professor**, Civil, Environmental and Geodetic Engineering, The Ohio State University
6/2017 – present	**Professor** (by courtesy), Computer Science and Engineering, The Ohio State University
9/2012 – 6/2017	**Associate Professor** (by courtesy), Computer Science and Engineering, The Ohio State University
9/2006 – 8/2012	**Assistant Professor**, Civil, Environmental and Geodetic Engineering, The Ohio State University
9/2010 – 8/2012	**Assistant Professor** (by courtesy), Computer Science and Engineering, The Ohio State University
8/2004 – 5/2006	**Visiting Assistant Professor**, Computer Science, Univ. Of Central Florida
1/2000 – 8/2004	**Graduate Research Associate**, Computer Science, Univ. Of Central Florida

Degrees

8/2004	**Ph.D.**, University of Central Florida, Computer Science
	Object Tracking and Activity Recognition in Video Acquired Using Mobile Cameras
5/2001	**M.S.**, University of Central Florida, Computer Science
9/1999	**M.E.**, Istanbul Technical University, Computer Engineering
	Face Recognition Using Eigenhills
5/1997	B.S., Yildiz Technical University, Computer Science and Engineering

Honors & Awards

2/2022	Outstanding Service Award. American Soc. for Photogrammetry and Remote Sensing
2/2021	Fellow. American Soc. for Photogrammetry and Remote Sensing
9/2020	Innovator of the Year. The Ohio State University
1/2020	Senior Member. National Academy of Inventors
2/2020	Innovator of the Year Finalist. The Ohio State University
2/2019	Presidential Citation. American Society for Photogrammetry and Remote Sensing
7/2016	Honorable Mention. International Dr. Masao Horiba Award. Horiba Ltd., Japan
4/2015	Lumley Interdisciplinary Research Award. The Ohio State University
7/2013-2/2015	Member, OSU President and Provost's Leadership Institute. The Ohio State University
10/2013	Senior Member, The Institute of Electrical and Electronics Engineers (IEEE).
4/2012	Lumley Research Award. College of Engineering. The Ohio State University
11/2008	Duane C. Brown Photogrammetry Senior Award. The Ohio State University
3/2004	Hillman Fellowship for Excellence in Research. University of Central Florida ($2,000)
4/2001	Merit Graduate Fellowship. University of Central Florida ($1,000)
3/2000	Merit Graduate Fellowship. University of Central Florida ($1,000)

Graduate Student Associates

Current Doctoral students (Dissertation Advisor)

1. 1/2016-present **Guanyu Xu** (*candidate*) (geodetic science)
2. 1/2016-present **Michael Karnes** (*candidate*) (civil engineering)
3. 1/2019-present **Yongsheng (Mike) Bai** (*candidate*) (civil engineering) (co-advised with Dr. Halil Sezen)
4. 9/2019-present **Gulcin Sarici Turkmen** (nuclear engineering) (co-advised with Dr. Tunc Aldemir)
5. 9/2019-present **Jianli Wei** (electrical and computer engineering)
6. 8/2020-present **Shehan Parera** (electrical and computer engineering)
7. 8/2021-present **Yuci Han** (electrical and computer engineering)
8. 3/2021-present **Pouyan Boreshnavard** (civil engineering)

Completed Doctoral students (Dissertation Advisor)

1. 8/2017-8/2021 **Bing Zha**. Map-Based Trajectory Learning for Geolocalization using Deep Learning. Motorola Research, Boston MA.
2. 8/2014-12/2019 **M. Taha Koroglu.** Multiple Hypothesis Testing Approach to Pedestrian Inertial Navigation with Non-recursive Bayesian Map-matching, Assistant Prof. Gumushane Univ.
3. 8/2014-8/2019 **Nima Ajam Gard.** Human Contour Detection and Tracking: A Geometric Deep Learning Approach. Research Scientist, Path Robotics Inc., Columbus OH.
4. 9/2016-12/2018 **Ji Hyun Lee.** Development of a Tool to Assist the Nuclear Power Plant Operator in Declaring a State of Emergency Based on the Use of Dynamic Event Trees and Deep Learning Tools. Researcher, Samsung, South Korea.
5. 1/2013-12/2018 **Yujia Zhang.** A Structured-Light Based 3D Reconstruction Using Combined Circular Phase Shifting Patterns. Postdoctoral Fellow, York University, Canada.
6. 1/2017-8/2018 **Oliver Nina.** MTLE: A Multitask Learning Encoder-N-Decoder Framework for Temporal-Visual Features for Movie and Video Descriptions. Researcher, US Air Force Research Lab.
7. 9/2013-6/2017. **Changlin Xiao.** Visual Tracking with an Application to Augmented Reality. Postdoc, ETH Singapore Campus.
8. 3/2014-3/2017. **Sagar Deshpande.** Semi-automated methods to create a hydro-flattened DEM using Single Photon and Linear Mode LiDAR. Tenure Track Assistant Professor, Pennsylvania State Univ.
9. 1/2013-5/2016. **Siavash HosseinyAlamdary.** Traffic Scene Perception using Multiple Sensors for Vehicular Safety Purposes. Current Position: Tenure Track Assistant Professor, Univ. of Twente, Netherlands.
10. 1/2014-11/2015. **Anuchit Sukcharoenpong.** Shoreline Mapping with Integrated HSI-DEM using Active Contour Method. Current Position: Geospatial Information Researcher, Geoinformation and Space Technology Development Agency, Thailand Government.
11. 12/2012-5/2015. **Ding Li.** "ESA ExoMars PanCam Vision System Geometric Modeling and Evaluation." Current Position: Research Scientist, Amazon Inc.
12. 1/2010-5/2014. **Daniya Zamalieva.** "Transformational Models for Background Subtraction in Moving Cameras." Current Position: Research Scientist, Amazon A9. (co-advised with J. Davis) Holds the following patents: US10026229B1
13. 0/2009-19/2014. **Young Jin Lee.** "Real-Time Object Motion and 3D Localization From Geometry." Current Position: Research Scientist, Trimble Inc.
14. 1/2010-12/2013. **Bernard Abayowa**. "Automatic Registration of Optical Aerial Imagery to a LIDAR Point Cloud for Generation of Large Scale City Models" (co-advised with R. Hardy at the Univ. of Dayton) Current Position: Lead Data Scientist Dayton Univ..
15. 8/2008-12/2013. **Heewon Lee**. "Exploiting dichromatic reflection model of an imaged object." (co-advised with H. Hemami)
16. 1/2008-12/2013. **Mohammed Al-Shahri**. "Line Matching in a Wide-Baseline Stereo-View." Current Position: Tenure track faculty at Sultan Qaboos University, Oman.
17. 6/2009-7/2013. **Kyoungjin Park**. "Generating Thematic Maps From Hyperspectral Images Using A Bag-of-Materials Model." Object Video, Computer Vision Research Scientist.

18. 8/2007-12/2012.   **Jinwei Jiang**. "Collaborative Tracking of Image Features Based on Projective Invariance." Current Position: Research Scientist at Ford Motor Inc.
Holds the following patents: US9936181B2
19. 4/2008-8/2012.   **Panu Srestasathiern**. "Line Based Estimation of Object Space Geometry and Camera Motion." Current Position: Geospatial Information Researcher, Geoinformation and Space Technology Development Agency, Thailand Government.
20. 3/2006-8/2011.   **Gabor Barsai**. "Data registration without explicit correspondence for estimating camera orientation parameters." Current Position: Tenure track faculty at Ferris State University, Michigan.
21. 1/2008-8/2011.   **Diego Mandelli**. "Scenario Clustering and Dynamic PRA." Current Position: Idaho National Labs. (co-advised with T. Aldemir)
22. 8/2007-12/2010.   **Lei Ding**. "From pixels to people: graph-based methods for grouping problems in computer vision." Current Position: Research Scientist at Paypal Inc. (co-advised with M. Belkin)
23. 1/2007-2/2010.   **Po-Lun Lai**. "Shape recovery by exploiting planar topology in 3D projective space." Current Position: Research Scientist at Trimble Inc.

Completed Masters Students

1. 4/2019-12/2020   **Yuci Han,** "Visual Navigation with UAV Using Deep Reinforcement Learning"
2. 1/2019-8/2020   **Shehan Perera,** "Automated Intracranial Hemorrhage and Subtype Detection"
3. 8/2015-5/2017   **Sai Luo,** "Semantic Movie Scene Segmentation Using Bag-of-Words Representation"
4. 8/2015-4/2017   **Nima Ajam Gard**, "Configuration of large camera networks."
5. 8/2015-4/2017   **Yuchen Lai,** "Augmented Reality Visualization of Building Information Models."
6. 8/2015-3/2017   **Abdullah Alanazi**, "Evaluation the accuracy of GIS data acquired from OpenStreetMaps by comparing against ISPRS benchmark data."
7. 8/2014-5/2016   **Adam Mattmuller,** (co-advised with Prof. Tunc Aldemir), Nuclear Power Plant Maintenance Improvements via Implementation of Wearable Technology."
Holds the following patents US20190063405A1
8. 1/2011-12/2014   **Andrew Kerns** (non-thesis), The Ohio State University
9. 9/2011-5/2013   **Jordan Lawver,** "Robust Feature Tracking in Image Sequences Using View Geometric Constraints."
10. 1/2011-5/2012   **Kashyap Maduri,** (non-thesis)
11. 7/2008-6/2011   **Vinod Khare**, "Precise image registration and occlusion detection."
Holds the following patents US20190052851A1, WO2019002557A1
12. 1/2009-9/2010   **Mustafa Ozendi**, "Viewpoint independent image classification and retrieval."
13. 1/2008-5/2010   **Rhae-Sung Kim**, "Spectral matching using bitmap indices of spectral derivatives for the analysis of hyperspectral imagery."
14. 8/2006-12/2008   **Panu Srestasathiern**, "View invariant planar object recognition."
15. 9/2006-5/2008   **Kyoungjin Park**, "Design of web services system for digital photogrammetry workstation based on service oriented architecture."

Undergraduate Senior Thesis Advisor

1. 5/2011   **Jordan Lawver**, "Three-Dimensional Volumetric Scene Recovery From Multiple Stereo Views Using Voxel Division Techniques."

Noteworthy accomplishments of advisees

1. **Pouyan Boreshnavard:**
Awarded the "Robert Alternhofen Memorial Scholarship" in 2022 by the American Society for Photogrammetry and Remote Sensing
2. **Bing Zha and Mike Bai**:
Awarded the "3rd Place Certificate of Achievement" in the 2018 PHI-NET Challenge in CS/DATA Category by the Pacific Earthquake Engineering Research Center
3. **Guanyu Xu**:
Awarded the "Michael Johnson Graduate Student Award" School of Earth and Sciences, Ohio State University
4. **Oliver Nina:**
Awarded 1st place at ICFHR Competition on Automated Text Recognition on a READ Dataset (2018)
https://scriptnet.iit.demokritos.gr/competitions/10/scoreboard/

5. **Oliver Nina:**
   Awarded 1st place at ICCV Large scale movie description challenge (2017)
   https://sites.google.com/site/describingmovies/previous-years/lsmdc-2017?authuser=0
6. **Taha Koroglu:**
   Recipient of competitive Turkish Government Fellowship (2012)
7. **Siavash HosseinyAlamdary:**
   Awarded second place in TIC'14: The ISPRS Tracking and Imaging Challenge (2014)
8. **Jordan Lawver:**
   US Geospatial Intelligence Foundation Scholarship (2012);
   OSU College of Engineering Undergraduate Research Fellowship (2011);
   Honors Thesis (2011);
   Best Paper Award at ISA Workshop (2013)
9. **Po-Lun Lai:**
   OSU Duane Brown Junior Award (2010);
   IEEE travel fellowship recipient (2008);
   Post Doctoral Research at Mechanical Engineering Department at OSU 2011)
10. **Lei Ding:**
    OSU Presidential Fellowship (2008);
    Post Doctoral Research at Electrical Engineering Dept. at Columbia University
11. **Jinwei Jiang:**
    OSU University Fellowship (2007)
12. **Panu Srestasathiern:**
    Recipient of competitive Thailand Government Fellowship (2008)
13. **Mohammed Al-Shahri:**
    Recipient of competitive Oman Government Fellowship (2008)

Publications

Patents

[1] System and method for analysis of surface features, US9291527B2,
[2] System and method for analysis of surface features, US10063837B2
[3] Systems, methods, and devices for geo-localization, US10677932B2
[4] Mesh registration system and method for diagnosing tread wear, US10789773B2
[5] Mesh registration system and method for diagnosing tread wear, US10247641B2
[6] Methods and systems for performing navigation-assisted medical procedures, US10383654B2
[7] Systems and methods for real-time data processing and for emergency planning, US11156996B2
[8] Systems, Methods and Devices for Map-Based Object Localization Using Deep Learning. **Provisional Patent**, Application Number 63/049,005
[9] Systems, Methods and Devices for Learning Objects' Motion Trajectories on Maps Using Deep Learning for Temporally Consistent Geo-Localization. **Provisional Patent**, Application Number 63/064,656
[10] Automated Systems for Detection of Stroke and Related Methods. **Provisional Patent**, Application Number 63/296,602

Chapters in Books

[1] Z. Koppanyi, D. Iwaszczuk, B. Zha, C. Saul, C. Toth and A. Yilmaz. August 2019. Multi-Modal Semantic Segmentation: Fusion of RGB and Depth Data in Convolutional Neural Networks. In Multi-Modal Scene Understanding. Edited by Bodo, M. Yang and Vittorio. Elsevier. ISBN: 9780128173589
[2] A. Gupta and A. Yilmaz. 2018. Social Network Inference in Videos, in Signal Processing, Volume 6 on Image and Video Processing and Analysis and Computer Vision, Chapter 11, pages 395-424, Elsevier. DOI: 10.1016/B978-0-12-811889-4.00011-7
[3] L. Ding and A. Yilmaz. 2014. Learning Social Relations from Videos: Features, Models and Analytics. In Human-Centered Social Media Analytics. Edited by Y.R. Fu and S. Rees. New York, NY: Springer Verlag. DOI 10.1007/978-3-319-05491-9_2
[4] F. Porikli and A. Yilmaz. 2012. Object Tracking. In Video Analytics for Business Intelligence. Edited by C. Shan, F. Porikli, T. Xiang and S. Gong. New York, NY: Springer Verlag. ISBN 978-3-642-28597-4

[5] A. Durdu, I. Erkmen, A. Erkmen, A. Yilmaz. 2012. Robotic Hardware and Software Integration for Changing Human Intentions. In Prototyping of Robotic Systems: Applications of Design and Implementation. Edited by T. Sobh, X. Xiong. IGI Global Publisher. ISBN13: 978-1-466-60176-5

[6] A. Yilmaz. 2011. Detecting and Tracking the Action Content. In Computer Analysis of Human Behavior. Advances in Pattern Recognition. Edited by Theo Gevers and Albert Ali Salah. New York, NY: Springer Verlag. 41-68. ISBN 978-0-85729-993-2

[7] A. Yilmaz. 2009. Active Contours: Snakes. In Wiley Encyclopedia of Computer Science and Engineering. Vol. 1. Edited by Benjamin W. Wah. New Jersey: John Wiley & Sons. 11-13. ISBN: 978-0-471-38393-2

[8] A. Yilmaz. 2009. Level Set Methods. In Wiley Encyclopedia of Computer Science and Engineering. Vol. 3. Edited by Benjamin W. Wah. New Jersey: John Wiley & Sons. 1731-1734. ISBN: 978-0-471-38393-2

[9] A. Yilmaz. 2009. Contour Tracking. In Wiley Encyclopedia of Computer Science and Engineering. Vol. 1. Edited by Benjamin W. Wah. New Jersey: John Wiley and Sons. 668-672. ISBN: 978-0-471-38393-2

Journal Articles

[1] J. Chen, Z. Sun A. Yilmaz, and P. Tang. October 2021. Characterizing a Single Camera-based Multi-Object Tracking Approach Augmented by Contextual Information for Workflow Diagnosis. Journal of Computing in Civil Engineering (*submitted* CPENG-4645)

[2] B. Zha and A. Yilmaz. June 2021. Subgraph Learning for Topological Geolocalization with Graph Neural Networks. ISPRS Open Journal of Photogrammetry and Remote Sensing (*submitted*)

[3] A. Yusefi, A. Durdu and A. Yilmaz. March 2021. HVIOnet: A Deep Learning Based Hybrid Visual-Inertial Odometry Approach for Unmanned Aerial System Position Estimation, IEEE Access (*submitted* Access-2021-09549)

[4] Y. Bai, B. Zha, H. Sezen and A. Yilmaz. Feb 2022. Engineering deep learning methods on automatic detection of damage in infrastructure due to extreme events. Structural Health Monitoring. (*accepted*)

[5] Guobiao Yao *, Yilmaz Alper *, Fei Meng, Zhang Li. July 2021. Review of Wide-baseline Stereo Image Matching Based on Deep Learning. International Journal of Remote Sensing. 13(16), 3247; https://doi.org/10.3390/rs13163247

[6] N. Xua, D. Huanga, S. Songa, X. Linga, C. Strasbaugh, A. Yilmaz, H. Sezen and R. Qin. July 2021. A volumetric change detection framework using drone-based oblique photogrammetry - A case study of ultra-high-resolution monitoring of progressive building collapse. International Journal of Digital Earth. https://doi.org/10.1080/17538947.2021.1966527

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[123] M. Al-Shahri and A. Yilmaz. 2013. Framework for Line Feature Matching Across Images. ASPRS 2013 Annual Conference, Maryland (March)

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[125] Zamalieva, A. Yilmaz, T. Aldemir and R. Denning, "Online labeling of dynamic event tree scenarios using Observable Operator Models," International Topical Meeting on Probabilistic Safety Assessment and Analysis (PSA), 09/2013.

[126] Z. Jankovsky, D. Zamalieva, A. Yilmaz, R. Denning and T. Aldemir, "A clustering analysis of probabilistic proliferation resistance measures in an example nuclear fuel system," International Topical Meeting on Probabilistic Safety Assessment and Analysis (PSA), 09/2013. (best student paper award)

[127] D. Zamalieva, A. Yilmaz and T. Aldemir, "Thresholding strategies for Dynamic Event Tree online labeling with Hidden Markov Models," American Nuclear Society Winter Meeting and Nuclear Technology Expo (ANS), 11/2013. Washington, DC.

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[140] D. Zamalieva, A. Yilmaz and T. Aldemir. 2011. A Probabilistic Model for Online Scenario Labeling in Dynamic Event Tree Generation. In: European Safety and Reliability Conference. Troyes, France. (September)

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[153] V. Khare, A. Yilmaz and Olga Mendoza-Schrock. 2010. Precise Image Registration and Occlusion Labeling. In: IEEE NAECON. Dayton, OH. (July 14)

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[155] D. Mandelli, A. Yilmaz, K. Metzroth, R. Denning and T. Aldemir. 2010. Scenario Aggregation and Analysis via Mean-Shift Methodology. In: Int. Congress on Advances in Nuclear Power Plants. San Diego, CA. (June): 990-994.

[156] D. Mandelli, A. Yilmaz, K. Metzroth, T. Aldemir and R. Denning. 2010. DET and Scenario Aggregation: A Sensitivity Analysis. In: Proc. of Verification and Validation for Nuclear Systems Analysis Workshop, Raleigh, NC. (June).

[157] T. Aldemir, A. Yilmaz and D. Mandelli. 2010. Scenario Aggregation in Dynamic PRA Uncertainty Quantification. In: Proceedings of the American Nuclear Society. Vol. 102. San Diego, CA. (June): 246-249.

[158] D. Mandelli, A. Yilmaz, T. Aldemir and R. Denning. 2010. Scenario Aggregation and Analysis via Mean-Shift Methodology. In: Proc. of Probabilistic Safety Assessment and Management. Seattle, WA. (June).

[159] D. Mandelli, K. Metzroth, A. Yilmaz, R. Denning and T. Aldemir. 2010. Probabilistic Clustering for Scenario Analysis. In: Proceedings of the American Nuclear Society. Vol. 103. Las Vegas, NV. (June): 371-374.

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[161] K. Park and A. Yilmaz. 2010. A Social Network Analysis Approach to Analyze Road Networks. In: ASPRS Annual Conference. San Diego, CA. (April 25)

[162] R. Li, S. He, B. Skopljak, J. Jiang, P. Tang, A. Yilmaz, M. Banks and C. Oman. 2010. Development of a Lunar Astronaut Spatial Orientation and Information System (LASOIS). In: ASPRS Annual Conference. San Diego, CA. (April 25)

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[165] A. Yilmaz and G. Barsai. 2009. Object Recognition Using Angles in the Projective Plane. In: American Society for Photogrammetry and Remote Sensing Annual Conference. Baltimore, MD, USA. (March): 1-6.

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[171] P. Lai and A. Yilmaz. 2008. Efficient Object Shape Recovery via Slicing Planes. In: IEEE Conf. on Computer Vision and Pattern Recognition (CVPR). Anchorage, AK, USA. (June): 1-6.

[172] R. Li, K. Di, B. Wu, S. He, B. Skopljak, M. Tang, A. Yilmaz, M. Banks, C. Oman and K. Bhasin. 2008. LASOIS: Enhancing the Spatial Orientation Capability of Astronauts on the Lunar Surface. In: NASA Lunar Science Conference. San Jose, CA, USA. (July): 1-4.

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Research Grants

Dr. Yilmaz has received over $13M in research funds from industry: Trimble, Ford, ICT, UbiHere, and government: NASA, DOE, NGA, DOT, NSF, AFRL, NSA.

University Funded Research

9/2021-8/2022	"Automated Detection of Subtypes of Intracranial Hemorrhage Using Deep Learning". OSU Center for Medical and Engineering Innovation $25,000 (**PIs**: Alper Yilmaz, Deepak Gulati)
6/2021-8/2021	"COVID-19 Diagnosis through integration Thermal Video and Patient Data" $10,000 (**PI**: Alper yilmaz)
8/2017-12/2018	"Automated Intraoperative Co-registration of Patient and Radiotherapy Device" OSUCCC Radiation Oncology Translational Research Seed Grant $15,000 (**PIs:** Ahmet Ayan, Alper Yilmaz, Nilendu Gupta)
7/2014-5/2017	"Wearable Navigation System for Image-guided Cancer Resection Surgery." OSUCCC Intramural Research Program IDEA Award. $100,000 (**PIs**: Alper Yilmaz, Ronald Xu, Michael Tweedle)
3/2017-2/2018	"The UAV Semantic Video Segmentation Challenge 2017" ISPRS Scientific Initiatives 7,000 Swiss Franc (**PIs:** Alper Yilmaz, Michael Yang)
5/2009-4/2010	"Development of Methods for Tracking Human Motion Without Markers in Athletic & Clinical Environments." OSU Sports Medicine Center. $3,805. (**PI:** Ajit Chaudhari, **CoI:** Alper Yilmaz)

Industry Funded Research

10/2021-11/2022	"(Phase 2 STTR) Low-Cost Compact Artificially Intelligent Camera System for Navigation and PNT Without GPS or Connectivity" UbiHere $216,221 (**PI**: Alper Yilmaz)
1/2021-8/2021	"(Phase 1 STTR) Low-Cost Compact Artificially Intelligent Camera System for Navigation and PNT Without GPS or Connectivity" UbiHere $50,000 (**PI**: Alper Yilmaz)
3/2019-2/2021	"360-degree-camera based perception." Ford. $185,010. (**PI:** Alper Yilmaz)
1/2020-12/2020	"(STTR) Multilateration of a forest of sensors with unknown positions" UbiHere $8,000 (**PI:** Alper Yilmaz)
11/2014-6/2017	"Recovering 3D ceiling profile using light coding technology." Intelligent Construction Tools, LLC. $344,977. (**PI:** Alper Yilmaz)
1/2012-6/2015	"Localization and Pose estimation for Tools at Construction Sites." Trimble Inc. $412,349. (**PI:** Alper Yilmaz)

Government Funded Research

10/2021-9/2024	"A virtual reality environment for human reliability assessment in the context of physical security attacks" DoE. $670,100 (**PIs**: Carol Schmit, Alper Yilmaz, Abdollah Shafiehzadeh)

9/2021- 8/2024	"Graph Neural Network based geometric modeling of terrain topology; its application to GPS denied navigation" ARO. $883,513 (**PIs**: Alper Yilmaz, Charles Toth)
1/2021-12/2021	"Phase 1: Center for Accurate Georeferencing of the Environment" NSF. $32,000 (**PIs**: Charles Toth, Liz Newton, Alper Yilmaz (OSU), Ayman Habib (Purdue) Vasit Sagan (SLU))
11/2019-10/2022	"Context-Aware Safety Information Display for Nuclear Field Workers." DoE. $800,000. (**PIs**: Pingbo Tang (ASU), Alper Yilmaz (OSU))
8/2019-5/2021	"Generative models with visual attention for target tracking and reacquisition." AFRL. $67,000+$55,000+$35,000. (**PI**: Alper Yilmaz (OSU))
9/2017-8/2020	"Integrating Static PRA Information with RISMC Simulation Methods" DoE. $799,985 (**PI**: Tunc Aldemir (OSU), **CoI**: Alper Yilmaz)
10/2016-9/2020	"Smart City Challenge." USDOT. $2,587,793 (**PI**: Carla Bailo (OSU) **Core Team Member**: Alper Yilmaz and others)
4/2016-6/2019	"Generative models with visual attention for target tracking and reacquisition." AFRL. $85,000. (**PI**: Alper Yilmaz (OSU))
10/2015-12/2018	"Automatic Video Analysis for Proactive Computer-Based Workflow Management during Nuclear Power Plant Outages." DOE NEUP Program. $799,351. (**PIs**: Pingbo Tang (ASU), Alper Yilmaz (OSU), CoIs: Nancy Cooke (ASU), James Rogers (ASU))
7/2015-6/2016	"REU Supplement: CMMI-1435446: Simulation of Collapse Behavior and Testing of Masonry Buildings." National Science Foundation. $10,000 (PI:Halil Sezen, CoI: Alper Yilmaz)
7/2014-6/2016	"Analytical and Experimental Collapse Behavior of Masonry Buildings." National Science Foundation. $227,628 (**PI**:Halil Sezen, **CoIs**: Alper Yilmaz)
7/2013-6/2015	"Geolocating videos acquired from mobile platforms." National Geospatial-Intelligence Agency. $263,031 (**PI**:Alper Yilmaz)
6/2011-3/2015	"High-precision long-range rover localization and topographic mapping using networked PanCam images for the ESA ExoMars rover mission." NASA. $624,705. (**PI**: Alper Yilmaz, **CoI**: Dorota Brzezinska)
6/2011-12/2014	"Outreach: Crater seeker for Mars and beyond." NASA. $80,000. (**PI**: Alper Yilmaz, **CoI**: Dorota Brzezinska)
7/2011-6/2014	"Integration of lunar reconnaissance orbiter camera (LROC) and lunar orbiter laser altimeter (LOLA) data for near real-time precision lunar topographic mapping and landing sites assessment." NASA. $399,633. (**PI**: Alper Yilmaz, **CoI**: Dorota Brzezinska)
10/2011-5/2014	"Pathway Aggregation (Clustering) in the Risk Assessment of Proliferation Resistance and Physical Protection (PR&PP) of Nuclear Energy Systems." DOE NEUP Program. $534,471. (**PI**: Tunc Aldemir, **CoIs**: Alper Yilmaz, M. Yue, L. Cheng, Umit Catalyurek)
1/2013-12/2013	"Collaborative research: RAPID: Impact of disturbance from hurricane Sandy on methane emission and carbon sequestration rates in NJ coastal wetlands." National Science Foundation. $70,200. (**PI**: Gil Bohrer, **CoIs**: Alper Yilmaz, Karina Schafer)
10/2011-9/2012	"View Geometric Approach to Tracking Scene Features." NSF/AFRL/Industry Center for Surveillance Consortium. $44,000.00. (**PI**: Alper Yilmaz, **CoI**: Randolph Moses, Lee Potter)
4/2011-9/2012	"Identifying Groups and Their Leaders in in IED Burying Scenario Acquired from a Camera Mounted on a Pole." Air Force Research Laboratory. $85,000.00. *Contract number: FA8650-07-D-1220-Task #6*. (**PI**: Alper Yilmaz, **CoI**: Randolph Moses)
11/2010-9/2012	"Wide Area Multimodal Sensor Exploitation for Detecting Human Threat Signatures." Air Force Research Laboratory. $43,000.00. *Contract number: FA8650-07-D-1220-Task #6*. (**PI**: Alper Yilmaz, **CoI**: Randolph Moses)
3/2010-9/2011	"Method and tool development to support systematic quantification of uncertainties." Idaho National Labs/Battelle Energy Alliance, LLC.

	$369,986.00. *Contract Number: Cont 42898 Task Rel 21*. (**PI:** Tunc Aldemir, **CoIs:** Richard Denning, Carol Smidts, Xiadong Sun, Umit Catalyurek, Alper Yilmaz)
4/2010-7/2011	"Image Georegistration, Camera Calibration and Dismount Categorization In Support of DEBU from Layered Sensing." Air Force Research Laboratory. $328,980.00. *Contract number: FA8650-07-D-1220-Task #5*. (**PI:** Alper Yilmaz, **CoIs:** Mateen Rizki, Charles Toth)
8/2008-7/2011	"Enhancement of spatial orientation capability of astronauts on the lunar surface." NASA-National Space Biomedical Research Institute. $1,200,000.00. *Contract Number: NCC 9-58-351*. (**PI:** Ron Li, **CoI:** Alper Yilmaz, Kaichang Di, Martin Banks)
9/2007-1/2009	"Real-time analysis of urban and rural environments for source assessment from a network of video cameras." DOD Counterintelligence Field Activity Behavioral Science Directorate. $111,247.00. *Contract Number: H9C104-07-C-0009*. (**PI:** Alper Yilmaz)

Editorial Activities

Journal Editorial Board

|	
2016-present	**Editor-In-Chief**. ASPRS Photogrammetric Eng. and Remote Sensing Journal.
2017	**Editor,** Proceedings of the ISPRS Hannover Workshop.
2017-2019	**Editorial Board Member.** International Journal Engineering and Geosciences
2014-2020	**Associate Editor**. Computer Vision and Image Understanding, Elsevier.
2015	**Guest editor**. ISPRS International Journal of Geo-Information. Special issue on Tracking and Imaging.
2015	**Field Editor** on Sensor Fusion for GPS-denied Environments, Springer, Encyclopedia of GIS
2006-2011	**Associate Editor**. Machine Vision and Applications.

List of Offices Held and Services to Professional Societies

2020-present	**Interim President, Technical Commission II,** International Society for Photogrammetry and Remote Sensing (ISPRS)
2018-2020	**Chair, Publications Committee,** American Society for Photogrammetry and Remote Sensing (ASPRS)
2016-present	**Member**, **Scholarship Committee,** American Society for Photogrammetry and Remote Sensing (ASPRS)
2016-present	**Member,** IEEE Technical Committee on Intelligent Informatics
2016-present	**Member,** IEEE Technical Committee on Multimedia Computing
2010-present	**Member,** IEEE Technical Committee on Pattern Analysis and Machine Intelligence
2016-present	**Member,** IEEE Technical Committee on Social Networking
2016-present	**Member,** IEEE Technical Committee on Wearable and Ubiquitous Computing
2016-2020	**Chair**, **Commission II WG II/5**, International Society for Photogrammetry and Remote Sensing (ISPRS)
2014-2017	**Committee Member**, **Publications and Publicity Committee**, International Association for Pattern Recognition (IAPR)
2012-2016	**Co-Chair**, **Commission III WG III/3**, International Society for Photogrammetry and Remote Sensing (ISPRS)
2010-present	**Active Member**, American Society for Photogrammetry and Remote Sensing
2009-2010	**Treasurer**, **Special Group on Health Informatics**, Association for Computing Machinery (ACM)
2003-present	**Active Member**, Association for Computing Machinery (ACM)
2001-present	**Active Member**, IEEE Computer Society
1999-present	**Active Member**, Institute of Electrical and Electronics Engineers (IEEE)

Curriculum vitae: **Jan Dirk Wegner**

Contact: jandirk.wegner@uzh.ch and jwegner@ethz.ch
Date & place of birth: February 9, 1982, Oldenburg (Germany)
Nationality: German
Marital status: married, two daughters (10/2015, 09/2018)

Citations	4551
h-index	30
i10-index	53

(bar chart: 2015 2016 2017 2018 2019 2020 2021 2022)
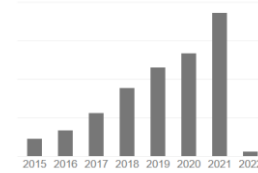
Education

10/2007 – 8/2011	PhD (**with distinction**) at Leibniz Uni. Hannover, IPI
10/2002 – 9/2007	Diplomingenieur *Geodesy and Geoinformatics* at Leibniz Universität Hannover
11/2006 – 9/2007	Diploma thesis at Centre National d'Études Spatiales (CNES) in Toulouse
2/2005 – 11/2005	Two semesters *Geomatics* studies abroad at the University of Melbourne

Employment & Career

02/2021 -	Director of PhD graduate school "Data Science" at University of Zurich
01/2021-	**Associate Professorship in "Data Science for Sciences", Institute for Computational Science, University of Zurich**
05/2020	***WEF Young Scientist 2020**, 25 best researchers world-wide under 40*
03/2019 – 06/2019	Visiting Scientist at **TUM-CREATE Singapore** (Dr. Ido Nevat)
09/2017 -	**Founder and head of the EcoVision Lab**
08/2016 – 12/2020	Deputy PRS group leader, Senior Researcher and Lecturer
04/2016 – 06/2016	Visiting scientist at **IGN MATIS** (Dr. Clément Mallet)
05/2015 – 08/2015	Visiting scientist at **California Institute of Technology**, Computational Vision group (Prof. Pietro Perona)
04/2015 – 08/2017	Senior Research Assistant and Lecturer ETH Zürich, PRS group
04/2012 – 03/2015	Postdoctoral Researcher ETH Zürich, PRS group (first two years funded by ETH Postdoctoral fellowship, acceptance rate ~ 20%)
10/2007 – 12/2011	Research assistant at Leibniz Universität Hannover, Institute of Photogrammetry and GeoInformation (IPI)
08/2001 – 05/2002	Paramedic in emergency ambulance (replacement for military service)

Funding   (chronologically ordered)

- *Remote Monitoring of Armed Conflicts (2021).*
  PI, 315'000 CHF funding from ETH4D Humanitarian Action Challenge
- *Sustainable sourcing policies for biodiversity protection, climate mitigation, and improved livelihoods in the cocoa sector (2021).*
  Co-PI, 168'000 CHF funding from SNSF/Biodiversa
- *Tree cell extraction in microscopic images (2021).*

PI, 150'000 CHF funding from WSL Birmensdorf

- *Shade-tree cover for sustainable cocoa production (2020).*
  Co-PI, 45'000 CHF funding from CAOBISCO-JRF
- *Remotely estimating shade-tree cover & carbon stocks for cocoa agroforestry farms (2020).*
  PI, 330'220 CHF funding from the Lindt Cocoa Foundation
- *Deep Snow – Deep Learning for Snow Depth Monitoring (2020).*
  PI, 350'189 CHF funding from Innosuisse
- *Palm oil and coconut density estimation with satellite images and machine learning (2020).*
  PI, 83'043 CHF third party funding from industry
- *4Real: real-time urban pluvial flood forecasting (2020).*
  PI, 224'000 CHF funding from the Swiss Data Science Center plus one senior scientist at SDSC contributing to physics-constrained deep learning
- *Combining machine learning, ecological modelling and plant morphological characteristics to develop a tool for identifying plants of Switzerland (2020).*
  Co-PI, 224'000 CHF funding from the Swiss Data Science Center plus one senior scientist at SDSC contributing to biodiversity modelling from crowd-sourced imagery
- *Developing a computer vision toolbox for high throughput phenotyping in ecology and evolution (2019).*
  Co-PI, 50'000 CHF EAWAG Discretionary funds for research
- *Global biomass mapping at 20-meter resolution from satellite imagery (2019).*
  PI, 20'000 CHF third party funding Amazon Research as AWS cloud computing credits
- *Monitoring of sustainable cocoa farms in African agroforests from space (2019).*
  PI, 286'000 CHF third party funding from industry
- *Biomass and land cover change tracking in vulnerable tropical regions (2019).*
  PI, 235'990 CHF third party funding from industry
- *SNF Scientific Exchange Grant (2019).*
  PI, 10'200 CHF, scientific visit at TUM-CREATE Singapore (April – March 2019)
- *ShapeGraph: Geometric deep learning for structured shape prediction (2018).*
  PI, 335'000 CHF funding via an ETH Research Grant (in collaboration with the Data Analytics Lab of Prof. Thomas Hofmann)
- *Large-scale machine learning to classify crops and estimate biodiversity (2018).*
  PI, 1'000'000 CHF funding from the Swiss Federal Office for Agriculture (BLW)
- *Detection of cocoa farms with satellite images and deep learning (2018).*
  PI, 60'000 CHF third party funding from industry
- *DeepGIS: Learning geographic information from multi-mod. imagery & crowdsourcing (2017)*.
  PI, 50'000 CHF funding from Hasler Foundation
- *Yield prediction with satellite images and machine learning (2017).*
  PI, 286'000 CHF third party funding from industry
- *Automated Large-scale High Carbon Stock estimation from Space (2017).*
  PI, 216'000 CHF third party funding from industry
- *Brazilian Visiting Scientist Grant 2017 (sponsored by IEEE GRSS)*
  PI, 5000 CHF, scientific visit at universities in Rio de Janeiro and Belo Horizonte, Brazil
- *Developing Resources for Urban Tree Monitoring* (2017).
  PI, 20'000 USD, US Department of Agriculture, Forest Service
- *ISPRS Scientific Initiative grants (2014 - 2017).*
  Co-PI, 25'000 CHF, benchmark challenges on semantic segmentation of overhead images.
- *French Visiting Scientist Grant (2016)*
  PI, 7000 euros, scientific visit at IGN MATIS in Paris, France
- *SNF International Short Visit Grant (2015).*
  PI, 8250 CHF, scientific visit at Prof. P. Perona's Computer Vision Laboratory at Caltech, USA
- *ETH Postdoctoral fellowship grant (2012)*
  PI, ~200'000 CHF, ETH/EU-COFUND

Awards

- ***Best paper award*** *at ISPRS Geospatial Week 2019* semantics3D workshop for "Flood-water level estimation from social media images".
- ***Best paper award*** *of the ISPRS Journal of Photogrammetry and Remote Sensing 2018 (U.V. Helava award)* for "From Google Maps to a Fine-Grained Catalog of Street Trees".
- ***Best paper award*** *at ISPRS mid-term Symposium 2018* for "Supervised outlier detection in large-scale MVS point clouds for 3D city modeling applications".
- Outstanding reviewer award ISPRS Journal (2015 & 2016), IEEE JSTARS (2016)
- *NVIDIA Hardware Grant 2016* for one Nvidia Titan GPU to run parallelized CNN architectures
- ***Best paper award*** *at ISPRS PIA 2015* for "Semantic segmentation of aerial images in urban areas with class-specific higher-order cliques".
- ***Wissenschaftspreis*** *der Deutschen Geodätischen Kommission* (science award of the German Geodetic Commission) in 2014; awarded every two years to an internationally recognized young researcher (2000 euros)
- *Award for best diploma thesis* in the field of Geodesy and Geoinformatics in 2007 awarded by Geoinformatics North (GiN e.V.) (1000 euros)
- *Leonardo Da Vinci scholarship* for internship at French Space Agency in 2007 (~5000 euros)

Academic Service

- **Associate Editor** of the "ISPRS Journal of Photogrammetry and Remote Sensing", "Photogrammetric Engineering & Remote Sensing" and "La Revue Française de Photogrammétrie et de Télédétection"
- **Chair of ISPRS working group** II/6 "Large-scale machine learning for geospatial data analysis" (2016-2020), Secretary of ISPRS working group III/IV "3D Scene Analysis" (2012-2016)
- **Member of the Swiss Academy of Sciences**, Swiss Commission on Remote Sensing
- **Member of ETH Zurich initiatives ETH4D and World Food System Center**
- General Chair "EarthVision" at CVPR 2015, 2017, 2019, 2020 and the "1st Swiss Workshop on Machine Learning for Environmental and Geosciences" (MLEG2019)
- **Scientific Advisory board** member of the "High-carbon stock" initiative (led by Greenpeace)
- **Conference Area Chair**: VCM 2013, PCV 2014, WACV 2015/2018/2021, ISPRS conferences, BMVC 2020
- **Tutorial chair** of the XXIV ISPRS Congress 14 – 20 June 2020/2021 Nice, France

Guest Editor of journal theme issues:

- *"Multi-view Satellite image processing"* (ISPRS Journal of Photogrammetry and Remote Sensing, to appear 2021)
- *"*Pattern Recognition and Image Processing for Geoscience and Remote Sensing*"* (IEEE Geoscience and Remote Sensing Letters, 2020),
- *"Machine Learning and Deep Learning in Cultural Heritage"* (ISPRS International Journal of Geo-Information, to appear 2020)
- *"Data Analytics: Meeting the challenges of Big Geo Data"* (ISPRS Journal of Photogrammetry and Remote Sensing, 2020)
- *"Machine Learning for Geospatial data Analysis"* (ISPRS International Journal of Geo-Information, 2018)
- *"Geospatial Computer Vision"* (ISPRS Journal of Photogrammetry and Remote Sensing, 2018)
- *"GeoVision"* (IEEE JSTARS, 2016),
- "*Urban Object Detection and 3D Building Reconstruction"* (ISPRS Journal of Photogrammetry and Remote Sensing, 2014),

Invited speaker: Princeton PIXL seminar series 2016, MIT CSAIL 2016, CornellTech 2016, IGN MATIS 2016, ETH Future Cities Lab 2017, keynote speaker at SIBGRAPI 2017 (Rio de Janeiro), BarryCallebaut Sourcing Conference 2017 (Singapore), TUI Machine Learning 2017 (Mallorca), Leibniz Universität Hannover (2018), PhoWo Stuttgart (2019), European Conference on Machine Learning Tutorial (2019), ETH for Development launch event (2019), ETH Science City (2020), Earth Institute at Columbia University (2021), WSL AI workshop Zurich (2021), CosmoStat Paris-Saclay (2021), Geomonitoring Clausthal (2021), ETH4D matchmaking event (2021), ISPRS Virtual Congress (2021).

Reviewer:

<u>Funding agencies:</u> German Research Foundation (DFG), Dutch Research Foundation (NWO), US Department of Agriculture (USDA),

<u>Conferences:</u> CVPR, ICCV, ECCV, GCPR, ICML, ICLR, NeurIPS, WACV, 3DV, ISPRS conferences

<u>Journals:</u> IEEE TPAMI, ISPRS Journal, IEEE TGRS, IEEE JSTARS, IEEE GRSL, Remote Sensing of Environment, Remote Sensing

(Co-)supervision of PhDs:

- *Yuchang Jiang: High carbon stock monitoring at large scale (ongoing)*
- *Marc Katzenmaier: Tree cell extraction in mircoscopic images (ongoing)*
- *Kaan Karaman: Rapid forest degradation alerts with SAR image sequences and deep learning (ongoing)*
- *Alexander Becker: Remotely estimating shade-tree cover & carbon stocks (ongoing)*
- *Nikolai Kalischek: Monitoring of sustainable cocoa farms in African agroforests from space (ongoing)*
- *Yujia Liu: Geometric deep learning for structured shape prediction (ongoing)*
- *Özgür Turkoglu: Nationwide crop classification in Switzerland (ongoing)*
- *Riccardo de Lutio: Biodiversity estimation with machine learning (ongoing)*
- *Priyanka Chaudhary: Flood-level estimation from social media images (ongoing)*
- *Nico Lang: Automated Large-scale High Carbon Stock estimation from Space (ongoing)*
- *Andrés Rodriguez: Yield prediction with satellite images and machine learning (ongoing)*
- *Ahmed Nassar: DeepGIS: Learning geographic information from multi-mod. imagery & crowdsourcing (ongoing)*
- *Maros Blaha: Large-scale semantic 3D reconstruction (graduated 2017)*
- *Timo Hackel: Efficient semantic labeling of very large point clouds (graduated 2018)*
- *Javier Montoya: Modeling Local and Global Context Information for Aerial Image Labeling (graduated 2015)*
- *Pascal Theiler: Automated Registration of Terrestrial Laser Scanner Point Clouds (graduated 2015)*
- *Piotr Tokarczyk: Data-driven feature learning for landcover classification (graduated 2015)*

Short list of selected publications 2019-2022   (full list on Google scholar)

<u>Lang, N., Kalischek, N., Armston, J., Schindler, K., Dubayah, K., **Wegner**, J.D.:</u> Global canopy height regression and uncertainty estimation from GEDI LIDAR waveforms with deep ensembles, 2022, Remote Sensing of Environment, vol. 268, 112760.

<u>Persello, C., **Wegner**, J.D., Hänsch, R., Tuia, D., Ghamisi, P., Koeva, M., Camps-Vals, G.:</u> Deep Learning and Earth Observation to Support the Sustainable Development Goals, 2022, IEEE Geoscience and Remote Sensing Magazine, doi: 10.1109/MGRS.2021.3136100.

<u>Metzger, N., Turkoglu, M.O., D'Aronco, S., **Wegner**, J.D., Schindler, K.:</u> Crop Classification under Varying Cloud Cover with Neural Ordinary Differential Equations, 2021, IEEE Transactions on Geoscience and Remote Sensing, doi: 10.1109/TGRS.2021.3101965.

*De Lutio, R., She, Y., D'Aronco, S., Russo, S., Brun, P., **Wegner**, J.D., Schindler, K.:* Digital Taxonomist: Identifying Plant Species in Community Scientists' Photographs, 2021, ISPRS Journal of Photogrammetry and Remote Sensing, vol. 182, pp.112-121.

*Rodriguez, A., D'Aronco, S., Schindler, K., **Wegner**, J.D.:* Mapping Oil Palm Density at Country Scale: an Active Learning Approach, 2021, Remote Sensing of Environment, vol. 261, 112479.

*Turkoglu, M.O., D'Aronco, S., **Wegner**, J.D., Schindler, K.:* Gating Revisited: Deep Multi-layer RNNs That Can Be Trained, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2021, doi: 10.1109/TPAMI.2021.3064878.

*Kalischek, N., **Wegner**, J.D., Schindler, K.:* In the light of feature distributions: moment matching for Neural Style Transfer, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021, pp. 9382-9391.

*Turkoglu, M.O., D'Aronco, S., Perich, G., Liebisch, F., Streit, C., Schindler, K. **Wegner**, J.D.:* Crop mapping from image time series: deep learning with multi-scale label hierarchies, 2021, Remote Sensing of Environment, vol. 264, 112603.

*Liu, Y., D'Aronco, S., Schindler, K., **Wegner**, J.D.:* PC2WF: 3D Wireframe Reconstruction from Raw Point Clouds, 2021, International Conference on Learning Representations (ICLR), 12 pages.

*Chaudhary, P., D'Aronco, S., Leitão, J.P., Schindler, K., **Wegner**, J.D.:* Water level prediction from social media images with a multi-task ranking approach, 2020, ISPRS Journal of Photogrammetry and Remote Sensing, vol. 167, pp. 252-262.

*Nassar, A.S., D'Aronco, S., Lefèvre, S., **Wegner**, J.D.:* GeoGraph: Learning graph-based multi-view object detection with geometric cues end-to-end, 2020, European Conference on Computer Vision (ECCV), LNCS 12352, Springer, pp. 488-504.

*Hackel, T., Usvyatsov, M., Galliani, S., **Wegner**, J.D., Schindler, K.:* Inference, Learning and Attention Mechanisms that Exploit and Preserve Sparsity in CNNs, 2020, International Journal of Computer Vision (IJCV), vol. 128, pp. 1047-1059.

*Gojcic, Z., Zhou, C., **Wegner**, J.D., Guibas, L.J., Birdal, T.:* Learning multiview 3D point cloud registration, 2020, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), pp. 1759-1769.

*Laumer, D., Lang, N., van Doorn, N., Mac Aodha, O., Perona, P., **Wegner**, J.D.:* Geocoding of trees from street addresses and street-level images, 2020, ISPRS Journal of Photogrammetry and Remote Sensing, vol. 162, pp. 125-136.

*Lang, N., Schindler, K., **Wegner**, J.D.:* Country-wide high-resolution vegetation height mapping with Sentinel-2, 2019, Remote Sensing of Environment, vol. 223.

*Nassar, A.S., Lefèvre, S., **Wegner**, J.D*.: Simultaneous multi-view instance detection with learned geometric soft-constraints, 2019, International Conference on Computer Vision (ICCV), pp. 6559 – 6568.

*de Lutio, R., d'Aronco, S., **Wegner**, J.D., Schindler, K.:* Guided Super-Resolution as a Learned Pixel-to-Pixel Transformation, 2019, International Conference on Computer Vision (ICCV), pp. 8829 – 8837.

*Li, Z., **Wegner**, J.D., Lucchi, A.:* Topological Map Extraction from Overhead Images, 2019, International Conference on Computer Vision (ICCV), pp. 1715 - 1724.

*Gojcic, Z., Zhou, C., **Wegner**, J.D., Wieser, A.:* The Perfect Match: 3D Point Cloud Matching with Smoothed Densities, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019, pp. 5545-5554.

*Chaudhary, P., d'Aronco, S., Moy de Vitry, M., Leitão, J.P., **Wegner**, J.D.:* Flood-water level estimation from social media images. ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences, 2019, vol. IV-2/W5, 5 – 12. **BEST PAPER AWARD**

THE OHIO STATE UNIVERSITY

Rongjun Qin, Ph.D.

Associate Professor, The Ohio State University

Department of Civil, Environmental and Geodetic Engineering (CEGE)
Department of Electrical and Computer Engineering (ECE)
Translational Data Analytics Institute (TDAI)
Environmental Science Graduate Program (ESGP)
Sustainability Institute (SI)

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(Email) qin.324@osu.edu
(Web) http://u.osu.edu/qin.324/

Education

2011. 08 – 2015. 08	Ph.D., **Photogrammetry and Remote Sensing**, ETH Zurich.
2009. 09 – 2011. 06	M.Eng., **Photogrammetry and Remote Sensing**. LIESMARS (The State Key Laboratory for Information Engineering in Surveying, Mapping and Remote Sensing), Wuhan University.
2007.03 – 2009.06	B.Eng. (second degree/minor), **Electronics Communication Engineering**. School of Electrical Information Engineering, Wuhan University of Technology.
2005.09 –2009. 06	B.Sc., Major, **Computation Mathematics**. School of Mathematics and Statistics, Wuhan University.

Professional Experiences

2021. 05 –	Associate Professor (with Early Tenure),The Ohio State University, USA
2016. 02 – 2021. 05	Assistant Professor, The Ohio State University, USA
2015. 09 – 2015. 11	Software Engineer, Programmer. ETH Zurich, SEC FCL (Singapore ETH Center, Future Cities Laboratory).
2011. 12 – 2015.08	Ph.D. Researcher, SEC FCL.
2014. 09 – 2014.12	Visiting Scientist, Remote Sensing Technology Institute, German Aerospace Center (DLR)
2009.07 – 2011.10	Research Assistant, LIESMARS, Wuhan University

Awards & Contests

- ASPRS Talbert Abrams Grand Award (2022)
- IEEE Data Fusion Contest, Weak supervision and transfer learning for global mapping. Winner & first place (2020)
- Lumley Research Award, College of Engineering, The Ohio State University (2020).
- IEEE Senior Member (2019)
- IEEE Data Fusion Contest, 2019 Winner of semantic stereo and multi-view semantic 3D (2019)
- International Conference on Geoinformatics, 2018, Best student paper award to Advisee.
- Kaggle Amazon-Planet deep learning Challenge, Bronze Medal (2017) (Advisee participation)
- IARPA Topcoder world-wide 3D Coding Challenge, Top 5 (2016).
- 1st prize in National Mathematic Modeling Contest in China (2007) (within 1.7%)

Research Grants

19. Remote Sensing for Forest Renewal, Ecosystem Services, and Sustainable Hydrological Management

January 2022

(REFRESH).USAID (U.S. Agency for International Development). $1,384,098.00. (Co-PI)

18. Active and low-cost hyperspectral imaging and analysis for subsurface sensing. TDAI pilot grant. $10,000 (PI).

17. Field Testing of Concrete Buildings for Damage and Collapse Assessment. NSF. $299,998. (Co-PI)

16. Color Field: Robotic Painting with Students at "Camp Architecture" Office of Research, BETHA. The Ohio State University. $62,000 (Co-PI)

15. Building Energy Living Lab Digital Twin Pilot. Ohio State Energy Partners. $ 47,831 (Co-PI).

14. Better recognition of exposure to asthma triggers in the home environment using smartphones. United States Department of Housing and Urban Development (USHUD). $999,693. (Co-PI)

14. SWISH (SWIdden agricultural food systems, Sustainability, and Health). (USD 12,500 Total Award). Sustainability Institute and CERTAIN (Seed Grant). $12,500. (Co-PI)

13. Perform improvement of multi-view satellite 3D reconstruction. University of Southern California, Institute of Creative Technologies. $83,191. (Sole-PI)

12. Enabling seamless 3D semantic reconstruction from heterogeneous data at scale. Office of Naval Research. 2020/02 – 2023/03. $905,185 (Sole PI).

11. SWIdden agricultural food systems, sustainability and health (SWISH). Planning Grant to Sustainability Institute. $12,500. (Co-PI)

10. Towards automated semantic 3D reconstruction for immersive city-level environment creation using low-cost overhead images and crowd-sourcing photographs. Office of Naval Research. 2017/10 – 2020/09. $748,155. (Sole-PI).

9. Gift grant, American Family Insurances, $ 7,500.

8. Performance Evaluation of OSU RSP Multi-view Reconstruction Pipeline for 3D Reconstruction Using Satellite Images. John Hopkins University Applied Physics Lab. 2017/01-2017/04. Award Amount: $22,938. (Sole-PI)

7. An Operable System for LoD3 Model Generation Using Multi-source Data and User-friendly Interactive Editing. National Research Foundation of Singapore. Award Amount: SGD 1,214,145 (equivalent to USD 900,000) 2017/03 -2019/03. (External Investigator, Group leader, Major Proposal Writer).

6. The Use of Remote Sensing to Detect the Impact of U.S. Bombing and Consequent Demining Efforts on Contemporary Farmer Behavior. TDA Seed Grants. Award Amount: $29,600. 2017/01-2018/01. (Co-PI).

5. Measuring Urban Resilience from Space – A feasibility study of the urban response to the Haiti earthquake. SRE Seed Grants. Award Amount: $24,640. 2016/09 - 2019/04.

4. SmartPhone App for Residential Testing of Formaldehyde. Sponsor: National Science Foundation; Award amount: $99,985. 2017/01 – 2017/12. Summer = 0.5 month. (Co-PI).

3. Pilot project on water pool detection on roofs using UAV thermal imaging – in prevention of mosquito breeding grounds. Sponsor: National Environment Agency of Singapore. Award amount: 2400 USD. 2013/05-2013/06. (Co-Investigator)

2. Undergraduate innovative research fund at university level: Application of hash table in computer addressing and the comparison of their efficiency, Wuhan University. 2008/12-2009/03. (PI)

1. Web-based Enterprise evaluating system of Fiber Home Technology Group Company. Sponsor: Fiber Home Technology Ltd. Award amount: 2500 USD. 2009/07-2009/09. (Co-Investigator).

Academic Services

Associate Editor – ISPRS Journal of Photogrammetry and Remote Sensing (2022-Present)
Associate Editor - Photogrammetric Engineering and Remote Sensing (2017 - Present)
International Editorial Board Member – Photogrammetric Record (2022 – Present)
ASPRS Publication Committee Member
Secretary – ISPRS Technical Commission II (2021-2022)
Working Group Chair – ISPRS Technical Commission I – working group "Satellite Constellations for Remote Sensing". (Term 2016-2020).
Senior Member, IEEE (2019-present**)**
Guest Editor – "Remote Sensing of Urban Environment"– Photogrammetric Engineering and Remote Sensing (2018)

January 2022

Guest Editor (Lead) – "Multi-view Satellite Image Processing" – ISPRS Journal of Photogrammetry and Remote Sensing
Member, IEEE Image Analysis and Data Fusion (2018-present**)**
Member, American Society of Photogrammetry and Remote Sensing (2016 - present**)**
Committee Member, ASPRS Publication Committee

Conference Committee (reviewer/organizer/lecturer)
- EarthVision 2020,2021, 2022
- International Symposium on Applied Geoinformatics (ISAG2019), Yildiz Technical University, Istanbul, Turkey, 2019.
- Joint Urban Remote Sensing Event (JURSE), 2019.
- ISPRS Congress (2016,2020)
- ISPRS Geospatial week, 2019
- ISPRS Technical Commission I Mid-term Symposium, Karlsburg, Germany, 2018
- JURSE 2018
- UAV-g 2017
- ISPRS Hannover Workshop, 2017 Hannover, Germany.
- "Rapid mapping technique for disaster observation and global change data acquisition" Summer school ISRS 2016.
- The Implementation of Multi-sensors Remote Sensing Technology for Sustainable Disaster Management" workshop in ACRS 2013.

Publication Reviewer
- IEEE Transactions on Geoscience and Remote Sensing
- ISPRS Journal of Photogrammetry and Remote Sensing
- Photogrammetric Engineering and Remote Sensing
- Remote Sensing of Environment
- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
- International Journal of Remote Sensing
- Remote Sensing Journal
- ACM Computing Surveys
- IEEE Geoscience and Remote Sensing Letter
- IEEE Access
- GIScience and Remote Sensing
- ISPRS International Journal of Geo-Information
- Geo-spatial Information Science
- International Journal of Digital Earth
- European Journal of Remote Sensing
- National Science Review
- Geospatial Science and
- International Journal of Applied Earth Observation and Geo-information
- Coral Reefs Journal
- Scientific Data – Nature

Grants Review
- Development and Innovation Office, Hungary (two proposals), 2020
- Natural Sciences and Engineering Research Council of Canada, 2019
- National Science Foundation (NSF), 2018, 2020
- U.S. Army Corps of Engineers Engineer Research and Development Center's (ERDC) Proposal review, 2018 (invited, not performed due to citizenship eligibility)
- Singapore Land Transport Authority (LTA) Research Project, 2018

- United State Geological Survey (USGS), 2017.

Publications

(†: my advisee, * corresponding author)

❖ Book Chapters

[4] Hessah Albanwan†, Rongjun Qin*. Spatiotemporal Filtering of Remote Sensing Images. **Recent Advances in Image Restoration with Applications to Real World Problems**. IntechOpen. (In Progress)

[3] Rongjun Qin*, Shuang Song†. 3D reconstruction from multi-view stereo images. **Recent Advances in Image Restoration with Applications to Real World Problems**. IntechOpen. (In Progress)

[2] **Rongjun Qin***. Change Detection for Geodatabase Updating. **3D/4D City Modeling**. Whittles Publishing Scotland. (Upcoming)

[1] **Rongjun Qin***, Xu Huang†. Geometric Processing for Image-based 3D Object Modeling. **3D/4D City Modeling**. Whittles Publishing Scotland. (Upcoming)

❖ Journal Articles (J) and Top Computer Vision Conference (TC)

[J53] **Rongjun Qin**, Tao Liu (2022). A Review of Landcover Classification with Very-high Resolution Remotely Sensed Optical Images – Analysis Unit, Model Scalability and Transferability. **Remote Sensing (Accepted)** [IF:4.84]

[J52] Xiao Ling†, **Rongjun Qin*** (2022). A Graph-Matching Approach for Cross-view Registration of Over-view and Street-view based Point Clouds. **ISPRS Journal of Photogrammetry and Remote Sensing,** 185 (2022): 2-15. [IF:8.98]

[J51] Dorothée James, Antoine Collin, Antoine Mury, **Rongjun Qin** (2022). Satellite–Derived Topography and Morphometry for VHR Coastal Habitat Mapping: The Pleiades–1 Tri–Stereo Enhancement. **Remote Sensing,** 14(1), 219. [IF:4.84]

[J50] Min Chen, Shaohua Yan, **Rongjun Qin**, Xi Zhao, Tong Fang, Qing Zhu, Xuming Ge. Hierarchical Line Segment Matching for Wide-baseline Images via Exploiting Viewpoint Robust Local Structure and Geometric Constraints. **ISPRS Journal of Photogrammetry and Remote Sensing** (2021) [IF:8.98]

[J49] Shengxi, Gui†, **Rongjun Qin***. Automated LoD-2 Model Reconstruction from Very-High-Resolution Satellite-derived Digital Surface Model and Orthophoto. **ISPRS Journal of Photogrammetry and Remote Sensing** (2021). [IF:8.98]

[J48] Nabeel Mahmmod†, **Rongjun Qin**, Tarunjit Singh Butalia (2021). Safety risk assessment intelligent system for on-foot construction worker using fuzzy fault tree. **Journal of Intelligent & Fuzzy Systems** 41 (2021) 929–954. DOI:10.3233/JIFS-202915 [IF:1.85]

[J47] Xu, Ningli†, Debao Huang†, Shuang Song†, Xiao Ling†, Chris Strasbaugh, Alper Yilmaz, Halil Sezen, and **Rongjun Qin***. A volumetric change detection framework using UAV oblique photogrammetry–a case study of ultra-high-resolution monitoring of progressive building collapse. **International Journal of Digital Earth** (2021): 1-16. [IF:3.98]

[TC3] Shuang Song†, Zhaopeng Cui, **Rongjun Qin***. Vis2Mesh: Efficient Mesh Reconstruction from Unstructured Point Clouds of Large Scenes with Learned Virtual View Visibility. **International Conference on Computer Vision (ICCV) 2021**

[TC2] Zuoyue Li, Zhenqiang Li, Zhaopeng Cui, **Rongjun Qin**, Marc Pollefeys, Martin R. Oswald. Street-view Panoramic Video Synthesis from a Single Satellite Image. **International Conference on Computer Vision (ICCV) 2021.**.

[J46] Xiao Ling**†**, Xu Huang†, and **Rongjun Qin*** (2021). A Unified Framework of Bundle Adjustment and Feature Matching for High-Resolution Satellite Images." **Photogrammetric Engineering & Remote Sensing** 87, no. 7 (2021): 485-490. [IF: 1.27]

[J45] Nabeel Mahmood**†**, **Rongjun Qin**, Tarunjit Singh Butalia (2021), Concurrent Events Risk Assessment Generic Models with Enhanced Reliability Using Fault Tree Analysis and Expanded Rotational Fuzzy Sets. **International Journal of Fuzzy Systems.** [IF: 4.41]

[J44] Wenxia Gan†, Hessah Albanwan†, **Rongjun Qin*** (2021). Radiometric Normalization of Multi-Temporal Landsat and Sentinel-2 Images Using a Reference MODIS Product through Spatiotemporal Filtering. ***IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing.***

[J43] Dewayany Sutrisno, Mulyanto Darmawan, Ati Rahadiati, muhammad Helmi, Armaiki Yusmur, Mazlan Bin Hashim, Peter Tian-yuan Shih, **Rongjun Qin**, Zhang Li (2021). Spatial-Planning-Based Ecosystem Adaption (SPBEA): A Concept and Modelling of Prone Shoreline Retreat Areas. ***ISPRS International Journal of Geo-Information***. 2021,10 (3) 176. [IF: 2.24]

[J42] Caleb Robinson, Kolya Malkin, Nebojsa Jojic, Huijun Chen†, **Rongjun Qin**, Changlin Xiao†, Michael Schmitt, Pedram Ghamisi, Ronny Hänsch, Naoto Yokoya (2021). Global Land Cover Mapping with Weak Supervision: Outcome of the 2020 IEEE GRSS Data Fusion Contest. ***IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing***.

[J41] Yulu Chen†, **Rongjun Qin***, Guixiang Zhang†, Hessah Albanwan† (2021). Spatial Temporal Analysis of Traffic Patterns during the COVID-19 Epidemic by Vehicle Detection Using Planet Remote-Sensing Satellite Images. **Remote Sensing,** 13(2):208. [IF: 3.82]

[J40] Liu, Wei†, Fulin Su, Xinfei Jin, Hongxu Li, and **Rongjun Qin**. "Bispace Domain Adaptation Network for Remotely Sensed Semantic Segmentation." ***IEEE Transactions on Geoscience and Remote Sensing*** (2020). [IF: 6.67]

[J39] Yang Xu, Adil M. Rather, Shuang Song†, Jen-Chun Fang, Robert L. Dupont, Ufuoma I. Kara, Yun Chang, Joel A. Paulson, **Rongjun Qin**, Xiaoping Bao, Xiaoguang Wang (2020). Ultrasensitive and Selective Detection of SARS-CoV-2 using Thermotropic Liquid Crystals and Image-based Machine Learning. ***Cell Reports Physical Science***, Available at SSRN 3682267. (link)

[J38] Yilong Han†, Wei Liu†, Xu Huang†, Shugen Wang, **Rongjun Qin** (2020). Stereo Dense Image Matching by Adaptive Fusion of Multiple-Window Matching Results. *Remote Sensing, 12*(19), 3138. [IF: 4.51]

[J37] **Rongjun Qin** and Armin Gruen. (2020) The Role of Machine Intelligence in Photogrammetric 3D Modeling – An Overview and Perspectives, ***International Journal of Digital Earth***, DOI: 10.1080/17538947.2020.1805037 [IF: 3.98]

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❖ **Trade Journals**

[1] **Rongjun Qin***, Armin Gruen, Xianfeng Huang (2012). UAV Project – building a reality-based 3D model. Coordinates (Invited Paper).

Student Advisees

Current:

Ph.D. students: Hessah Albanwan, Shuang Song, Yun Ye, Mostafa Elhashash, Rami Tamimi (Co-advise with Charles Toth) , Debao Huang, Guixiang Zhang, Shengxi Gui, Ningli Xu, Yang Tang.
Master students: Nasir Abdullah, Timucin Bulmus, Batarfi, Abdulmajeed

Graduated & Alumni:

Postdoc: Changlin Xiao, Xu Huang. Xiao Ling.
Ph.D. graduates. Nabeel Mahmood (Co-advise with Tarunjit Butalia).
Master graduates: Alexandaria Julius, Hessah Albanwan (currently Ph.D.), Mao Li, Xinyuan Gui, Bowen Wen (co-advisee), Kara Lamantia (co-advisee), Pengyu Sun, Siyang Zhang (research advisee), Chenyang Xu (research advisee). Yulu Chen, Bihe Chen, Huijun Chen.
Undergraduate graduates: Xuyang Han, Yihan Yang (research advisee), Junyi Wang, Michael Kunitskiy, Michael Whaley (co-advisee), Paige Frey (co-advisee)
Visiting Ph.D. students: Wei Liu, Yilong Han
Visiting Scholars: Yanming Chen, Kun Hu, Xupei Zhang, Wenxia Gan

Dissertation and Candidacy Committee

Ph.D. Dissertation Committee:

Carrie Fearer (2022), ESGP, OSU
Guanyu Xu (2022), CEGE, OSU
Bing Zha (2021), CEGE, OSU
Hanyang Li (2020), CEGE, OSU

Nima Gard (2019), CEGE, OSU
Gene Sirca (2019), CEGE, OSU
Oliver Nina (2018), ECE, OSU
Yujia Zhang (2018), School of Geodetic Sciences, OSU
Yuming Shao (2018), School of Earth Sciences, OSU
Changlin Xiao (2017), CEGE, OSU
Elise Bui (2017), Psychology, OSU (faculty representative)
Ahmet Toluc (2016), CEGE, OSU
Emre Tepe (2016), City and Regional Planning, OSU (faculty representative)

Ph.D. Candidacy Committee:

Pouyan Boreshnavard (2022), CEGE, OSU
Zhuang Song (2020). CEGE, OSU.
Bing Zha (2019), CEGE, OSU
Carrie Ewing (2019), ESGP, OSU
Sierra Jackson (2019), Chemistry, OSU (faculty representative for second candidacy)
Xiaohu Lu (2019), CEGE, OSU
Amir Osman (2018), CEGE, OSU
Yun Ye (2018), CEGE, OSU
Nathan Ovans (2018), CEGE, OSU
Hessah Albanwan (2018), CEGE, OSU
Vibhor Agarwal (2018), School of Earth Sciences, OSU
Tingyi Yang (2018), School of Earth Sciences, OSU
Yuan Yang (2018), CEGE, OSU
Rohit Mukherjee (2018), Geography, OSU
Nima Gard (2018), CEGE, OSU
Nabeel Mahmood (2018), CEGE, OSU
Guanyu Xu (2018), School of Earth Sciences, OSU
Oliver Nina (2017), ECE, OSU

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Yulu Chen (2020), CEGE, OSU
Shengxi Gui (2020), CEGE, OSU.
Shahad N M A A Alojaiman (2019), CEGE, OSU
Xinyuan Gui (2019), CEGE, OSU
Bowen Wen (2018), ECE, OSU
Alman Rath (2018), CEGE, OSU
Alexandria Julius (2018), CEGE, OSU
Yuchen Lai (2017), CEGE, OSU
Sai Luo (2017), CEGE, OSU
Robert Nevins (2017), CEGE, OSU
Nima Ajam Gard (2017), CEGE, OSU
Hessah Albanwan (2017), CEGE, OSU

Master Committee (Non-Thesis):
Bihe Chen (2021), ECE, OSU
Zhe Chen (2021), ECE, OSU
Boyue Liu (2021), ECE, OSU
Mingrui Chen (2021), ECE, OSU
Mengqi Wu (2021), ECE, OSU
Weihua Tian (2021), ECE, OSU

Han Wang (2021), ECE, OSU
Guixiang Zhang (2021), ECE, OSU
Yuci Han (2020), CEGE, OSU
Chad Neikirk (2020), CEGE, OSU
Deren Kong (2020), CEGE, OSU
Pengyu Sun (2018), ECE, OSU
Abdullah Aloraini (2019), CEGE, OSU
Alreshoodi Saleh (2019), CEGE, OSU

Undergraduate Thesis Committee:

Paige Frey(2017) CEGE, OSU
Xuyang Han (2017) CEGE, OSU

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ISPRS Council
Att. Prof. Christian Heipke
Leibniz University Hannover
Institute of Photogrammetry and GeoInformation,
Nienburger Str. 1m
30167 Hannover
Germany

Zurich, 26 January 2022

Position acceptance vice-president of ISPRS TCII "Photogrammetry"

Dear Prof. Heipke, lieber Christian,

I am delighted to be suggested as vice-president for ISPRS Technical Commission II (Photogramme-try) through the application of the Swiss Society for Photogrammetry and Remote Sensing.

With my background in photogrammetry, remote sensing, computer vision, and machine learning, as well as my experience as an ISPRS working group chair, I am committed to work with Prof. Alper Yil-maz and Prof. Rongjun Qin to support the various aspects of the commission.

Please feel free to contact me if you need additional information or verification.

Sincerely,

Prof. Dr.-Ing. Jan Dirk Wegner
Institute for Computational Science
University of Zurich

THE OHIO STATE UNIVERSITY

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ISPRS Council
Att. Prof. Christian Heipke
Leibniz University Hannover
Institute of Photogrammetry and GeoInformation,
Nienburger Str. 1m
30167
Germany

January. 26, 2022

Dear Prof. Heipke,

I am pleased to be suggested as the Secretary for ISPRS Technical Commission II (Photogrammetry). With my background in Photogrammetry and remote sensing, and my past experiences as an ISPRS working group chair, I am committed to work with Profs. Alper Yilmaz and Jan Dirk Wegner, the President and Vice-president, to support the various aspects of the commission and its daily work.

Sincerely yours,

Rongjun Qin, Ph.D.
Associate Professor
Geospatial Data Analytics Laboratory
Department of Civil, Environmental and Geodetic Engineering
Department of Electrical and Computer Engineering
Environmental Science Graduate Program
qin.324@osu.edu http://u.osu.edu/qin.324/

November 15, 2019

Professor Christian Heipke
President, ISPRS
Leibniz Universitaet Hannover (LUH)
Institut fuer Photogrammetrie und GeoInformation (IPI)
Nienburger Str. 1, D - 30167 Hannover

Dear Dr. Heipke,

The American Society for Photogrammetry and Remote Sensing (ASPRS) is honored to submit its bid for hosting Technical Commission II – Photogrammetry of ISPRS for the period 2020-2024. On behalf of the Board of Directors of ASPRS, I am pleased to nominate Dr. Alper Yilmaz as President of Commission II, along with Dr.-Ing. Jan Dirk Wegner as Vice President and Dr. Rongjun Qin as Secretary.

We believe that ASPRS is uniquely positioned to host Commission II during the quadrennial period leading to the XXV ISPRS Congress. ASPRS has played a leading and integral role in fostering photogrammetry and remote sensing technology in the United States since 1934 and has been a global leader in these technologies for most of that time. In the coming four years, rapidly developing technologies that include UAV platforms for cameras and lidar, in association with new processing workflows that integrate computer vision and other advanced methods will continue to revolutionize the way we perform photogrammetric tasks for new applications such as autonomous driving and analysis of real-time video. The images and data sets derived from these technologies will provide exciting new opportunities and challenges for Commission II working groups.

As a Society, ASPRS has continued to strengthen its leading role in platforms, sensors, and imaging technology by hosting a series of "specialty conferences" on these topics. We propose that the 2022 mid-Congress Symposium be held as another conference in this series, but one focused on Commission II Working Group technical sessions. We also propose that this symposium be held in Baltimore, Maryland in conjunction with the Pecora Symposium to facilitate international travel.

Dr. Yilmaz is Professor of Geo-Informatics with appointment in Civil Environmental and Geodetic Engineering Department and Computer Science and Engineering Department (by courtesy) at The Ohio State University. He has an excellent research background in the Commission II topical areas and currently serves as Editor-in-Chief of the journal, Photogrammetric Engineering and Remote Sensing.   Dr. Yilmaz is a senior member of IEEE and an active member of ASPRS, ISPRS and IAPR professional societies. He has held leadership

positions in ISPRS since 2012 and is currently chairing the ISPRS Working Group 5 of Technical Commission II on Dynamic Scene Understanding. Please find attached a copy of his CV for your reference.   These skills and experiences speak favorably for an active and successful Commission II in 2020-2024.

We believe that Commission II, under the leadership of Dr. Yilmaz, will thrive during the next four years. We are committed to support his efforts in this endeavor.

Sincerely,

Jesse Winch | Acting Executive Director
ASPRS, The Imaging and Geospatial Information Society
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Cc (via email): ASPRS Board of Directors
                 ISPRS Council
                 Dr. Alper Yilmaz

SGPF

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To: Bern, January 28th 2020
ISPRS General Secretary

Re: Support of ISPRS Technical Commission II (2020-2024) candidature

Dear ISPRS Secretary General, Dear Lena

The Swiss Society for Photogrammetry and Remote Sensing (SGPF) is supporting the following candidature for the ISPRS Technical Commission II for the period 2020-2024:

President: Dr. Alper Yilmaz, The Ohio State University, USA
Vice-President: Dr. Jan Dirk Wegner, ETH Zurich, Switzerland

Both candidates have been very active within TC II in the past and have very significant research and teaching contributions in the topics of this Commission. Dr. Yilmaz will provide you with a full record of their accomplishments and plans for their candidature till February 14th. Our Society will support them and present the justification for this election during the appropriate GA in the forthcoming Nice Congress.

Our Society and ETH Zurich will give full support to Dr. Wegner for his work, while all financial responsibilities for his ISPRS activities as TC II Vice-President, when not otherwise covered, will be supported by ETH Zurich.

Best regards,

Stéphane Bovet , President   Prof. Dr. Konrad Schindler, Head Institute of Geodesy
SGPF/SSPT   and Photogrammetry, ETH Zurich