Yongjie Zheng

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University of Trento, Trento, Italy

Short Bio

Yongjie Zheng is currently a Ph.D. student at Remote Sensing Laboratory (RSLab), University of Trento, advised by Prof. Lorenzo Bruzzone. She was also an academic visitor of Technische Universität Berlin, Germany. Her current research is focusing on AI for Earth and planetary surface mapping. Her current interests include: Earth Surface Observation, Deep Space Mapping, Planetary Exploration. Aiming to contribute to Large-scale mapping of Earth and other planets (Lunar, Mars, Asteroid Bennu).

Experience

- **Technische Universität Berlin** *2024.09 - 2024.12*
  Academic Visitor at the Institute of Geodesy and Geoinformation Science Germany
  - Conducted research on AI for Planet Surface Mapping in collaboration with Prof. Jürgen Oberst.
  - Developed advanced methods to improve the accuracy of deep-space exploration, such as crater detection, and polar layer detection.
- **Shanghai Fabric Eyes Artificial Intelligence Technology Co., Ltd** *2021.06 - 2022.06*
  Machine Learning Engineer China
  - Designed advanced models for Realtime AI Based Alarming System for Fabric Printing (RAAS).
  - Developed and optimized computer vision algorithms for AI based Fabric Inspection System (AIFI).
  - Integrate AI models into AI-spectral-based portable fabric composition analyzing device (ASCA).

Education

- **University of Trento** *2022.12 - Present*
  Ph.D. in RSLab, Dept. of Information Engineering and Computer Science Trento, Italy
  - Supervisor: Prof. Lorenzo Bruzzone
  - Research Focus: AI-based Information Fusion for the Analysis of High Resolution Remote Sensing Images
- **Tongji University** *2018.09 - 2021.03*
  Master of Photogrammetry and Remote Sensing Shanghai, China
  - Supervisor: Prof. Sicong Liu
  - GPA: 4.62/5.00 (Rank: 1/74)
- **Henan Polytechnic University** *2014.09 - 2018.07*
  Bachelor of Remote Sensing Science and Technology Henan, China
  - GPA: 3.98/5.00 (Rank: 1/49)

Projects

- **National Natural Science Foundation of China (42071324)** *2021 – 2024*
  - Designed an automatic shallow-deep feature fusion network for VHR image classification.
  - Designed an automatic multi-temporal feature fusion network for multi-temporal image classification.
- **National Key R & D Program of China (2018YFB050500)** *2019 – 2022*
  - Designed a two-stage multiple feature fusion approach for VHR image classification (based on machine learning).
  - Designed a series of feature fusion networks for VHR image classification (based on deep learning).
- **China Meteorological Administration (CMACC) Open Foundation (QHBHSYS201904)** *2019 – 2020*
  - Analyzed the spatio-temporal characteristics of urban LULC and LST over Shanghai during 2009–2019.
- **National Natural Science Foundation of China (41601354)** *2018 – 2019*
  - Designed an automatic change detection method for large-scale scene remote sensing images.
  - Proposed a novel fire index-based burned area change detection approach using Landsat-8 data.
  - Designed a feature fusion method based on Landsat-8 OLI-SWIR and TIRS images for burned area change detection.

Research Activities

Conference Activities:
2024 – IGARSS (Oral)
2021 – The 6th National Imaging Spectrum Earth Observation (NISEO) (Oral)
2020 – IGWG (Oral)
2019 – MultiTemp (Oral and Volunteer)
Reviewing Activities:
ISPRS Journal of Photogrammetry and Remote Sensing
IEEE Transactions on Geoscience and Remote Sensing (TGRS)
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)
IEEE Geoscience and Remote Sensing Letters (GRSL)
SPIE Journal of Applied Remote Sensing (JARS)

Awards and Honors

Scholarships and Academic Honors:
2022 – Chinese Government Scholarship (Prestigious scholarship for Ph.D. studies)
2022 – Outstanding Master Degree (Top 2 in College, Tongji University)
2021 – Shanghai Outstanding Graduates Award (Top 3 in College, Tongji University)
2020 – National Scholarship (Top 3 in College, Tongji University)
2020 – Merit Student (Tongji University)
2018 – Henan Outstanding Graduates Award (Top 1 in Class, Henan Polytechnic University)
2018 – Outstanding Bachelor Degree (Top 1 in Class, Henan Polytechnic University)
2018 – Merit Student (Henan Polytechnic University)
2017 – National Encouragement Scholarship (Top 1 in Class, Henan Polytechnic University)
2016 – National Encouragement Scholarship (Top 1 in Class, Henan Polytechnic University)
2016 – Merit Student (Henan Polytechnic University)
2015 – National Encouragement Scholarship (Top 1 in Class, Henan Polytechnic University)
2015 – Merit Student (Henan Polytechnic University)
Competition Awards:
2018 – Second Prize, Huawei Cup China Postgraduate Mathematical Contest in Modeling
2017 – Honorable Mention, Mathematical Contest in Modeling (MCM/ICM)
2017 – Second Prize, The Challenge Cup (Henan Polytechnic University)
2017 – Third Prize, TipDM Cup Data Mining Challenge
2016 – First Prize, Contemporary Undergraduate Mathematical Contest in Modeling (CUMCM)

Patents and Publications

C=Conference, J=Journal, P=Patent, S=In Submission, †=Corresponding Author

[J.1] Hao Chen, Philipp Gläser, Xuanyu Hu, Konrad Willner, **Yongjie Zheng†**, Friedrich Damme, Lorenzo Bruzzone, and Jürgen Oberst. (2024). **ELunarDTMNet: Efficient Reconstruction of High-Resolution Lunar DTM From Single-View Orbiter Images**. *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*.

[C.1] **Yongjie Zheng**, Sicong Liu, and Lorenzo Bruzzone. (2024). **A Transformer-Enhanced Encoder-Decoder Network For Unsupervised Heterogeneous Remote Sensing Image Change Detection**. In *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*.

[J.2] **Yongjie Zheng**, Sicong Liu, Hao Chen, and Lorenzo Bruzzone. (2024). **Hybrid FusionNet: A Hybrid Feature Fusion Framework for Multisource High-Resolution Remote Sensing Image Classification**. *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*.

[J.3] **Yongjie Zheng**, Sicong Liu, and Lorenzo Bruzzone. (2023). **An Attention-Enhanced Feature Fusion Network (AeF2N) for Hyperspectral Image Classification**. *IEEE Geoscience and Remote Sensing Letters (GRSL)*.

[J.4] Sicong Liu, Kecheng Du, **Yongjie Zheng**, Jin Chen, Peijun Du, and Xiaohua Tong. (2023). **Remote Sensing Change Detection Technology in the Era of Artificial Intelligence: Inheritance, Development and Challenges**. *Journal of Remote Sensing (ERS)*.

[J.5] Sicong Liu, **Yongjie Zheng†**, Qian Du, Lorenzo Bruzzone, Alim Samat, Xiaohua Tong, Yanmin Jin, and Chao Wang. (2022). **A Shallow-to-Deep Feature Fusion Network for VHR Remote Sensing Image Classification**. *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*.

[J.6] **Yongjie Zheng**, Sicong Liu, Qian Du, Hui Zhao, Xiaohua Tong, and Michele Dalponte. (2021). **A Novel Multitemporal Deep Fusion Network (MDFN) for Short-Term Multitemporal HR Images Classification**. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)*.

[J.7] Sicong Liu, **Yongjie Zheng†**, Qian Du, Alim Samat, Xiaohua Tong, and Michele Dalponte. (2021). **A Novel Feature Fusion Approach for VHR Remote Sensing Image Classification**. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)*.

[J.8] Sicong Liu, **Yongjie Zheng**, Michele Dalponte, and Xiaohua Tong. (2020). **A Novel Fire Index-Based Burned Area Change Detection Approach Using Landsat-8 OLI Data**. *European Journal of Remote Sensing (EJRS)*.

[C.2] **Yongjie Zheng**†, Sicong Liu, Zhengxiang Song, Xiaohua Tong, and Huan Xie. (2019). **Analyzing Spatio-Temporal Characteristics of Urban LULC and LST over Shanghai During 2009–2019**. In *International Workshop on the Analysis of Multitemporal Remote Sensing Images (MultiTemp)*.

[C.3] Sicong Liu, **Yongjie Zheng**, Michele Dalponte, Xiaohua Tong, and Qian Du. (2019). **Feature-Level Fusion of Landsat-8 OLI-SWIR and TIR Images for Fine Burned Area Change Detection**. In *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*.

[P.1] Sicong Liu, **Yongjie Zheng**, Xiaohua Tong, et al. (2019). **A Novel Change Detection Method for Burned Area based on SWIR Bands of Landsat-8 OLI**. China National Intellectual Property Administration, Patent No. CN109583300B (in Chinese).

[P.2] Sicong Liu, **Yongjie Zheng**, Qian Du, et al. (2020). **A Novel Feature Fusion Method of Landsat-8 OLI-SWIR and TIR for Fine Burned Area Change Detection**. China National Intellectual Property Administration, Patent No. CN111008565A (in Chinese).

[P.3] Sicong Liu, **Yongjie Zheng**, Xiaohua Tong, et al. (2020). **An Automatic Method for Change Detection in Large Scale Remote Sensing Images**. China National Intellectual Property Administration, Patent No. CN111242050A (in Chinese).

[P.4] Sicong Liu, **Yongjie Zheng**, Xiaohua Tong, et al. (2021). **A Novel Automatic Shallow-Deep Feature Fusion Network for Very High Resolution Image Identification**. China National Intellectual Property Administration, Patent No. CN113449603A (in Chinese).

[P.5] Sicong Liu, **Yongjie Zheng**, Xiaohua Tong, et al. (2021). **A Novel Automatic Multitemporal Deep Feature Fusion Network for Multitemporal Image Identification**. China National Intellectual Property Administration, Patent No. CN113361355A (in Chinese).

REFERENCES

1. **Prof. Lorenzo Bruzzone**
   Full Professor, Dept. of Information Engineering and Computer Science
   University of Trento
   Email: lorenzo.bruzzone@unitn.it
   Relationship: Advisor

2. **Prof. Sicong Liu**
   Associate Professor, Tongji University
   Email: sicong.liu@tongji.edu.cn
   Relationship: Advisor