Kang Liang

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Research Interests

I am interested in promoting the accuracy, standardization and intelligence of Synthetic Aperature Radar Interferometry (InSAR), applying InSAR technique to landslides identification, mechanics understanding and modeling. My current focuses include:

- Deep learning for accurate and intelligent InSAR analysis
- State-of-art data science practices, (e.g., massively parallel processing, cloud computing) for InSAR big data processing
- Landslides identification and modeling with multi-source observation

Education

Southern Methodist University — Dallas, Texas, U.S.
Ph.D. in Geophysics — *Aug 2020 – now*
Advisor: Prof. Zhong Lu

University of Science and Technology of China — Hefei, China
B.S. in Geophysics — *Sep 2016 – Jun 2020*

Publications

1. K. Liang, J. Kim, Z. Lu, H. Fattahi, M. G. Bato, V. Brancato, S. Jeong, and V. Karanam, "Offset tracking with geocoded slc," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 63, pp. 1–13, 2025.
2. K. Liang, Z. Lu, and J. Kim, "Moraine: A high performance InSAR post-processing package in the SAR big data era," *in preparation*, 2024.
3. K. Liang, Z. Lu, J. Kim, and H. S. Jung, "Noise2Fringe: An unsupervised deep learning approach for InSAR denoising," *in preparation*, 2024.
4. K. Liang, J. Kim, Z. Lu, M. G. Bato, V. Brancato, and H. Fattahi, "The feasibility and requirements for offset tracking on GSLC," *AGU23*, 2023.
5. H. Fattahi, D. P. Bekaert, V. Brancato, Z. Yunjun, Z. Lu, M. G. Bato, J. W. Kim, S. Jeong, K. Liang, and S. Sangha, "OPERA Coregistered Single Look Complex products from Sentinel-1 data," in *Fall Meeting 2022*, AGU, 2022.

Invited Talks

1. "Offset tracking with geocoded SLC", NASA OPERA Project Science Team — *May 15th, 2024*

Paticipated Projects

Moraine - Modern Radar Interferometry Environment; A simple, stupid InSAR postprocessing tool in big data era

- 5000+ downloads on conda-forge, 14000+ downloads on PyPI.
- Serve as author and maintainer.
- Advanced Persistant Scatterer/Distributed Scatterer processing with massively parallel computing support (multi-GPU/multi-core).
- Low latency, high resolution, interative data visualization.

ATBD: Notebooks for NISAR Solid Earth Algorithm Theoretical Basis Document

- Implement jupyter notebooks for ATBD transient deformation requirement (663).
- Help revise the algorithm theoretical basis document.

OPERA Coregistered Single Look Complex (CSLC) validation tools

- Help develop and validate jupyter notebooks for absolute and relative geolocation error for sentinel-1 SLC.