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Yuan-Kai Liu

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Geophysicist, Geodesist

Radar Imaging Geodesy · Tectonic Deformation · Seismicity Dynamics · Volcanic Deformation

Education

Aug. 2019 – present	**California Institute of Technology (Caltech)**, California, USA	
	PhD in Geophysics (in progress)	
	Seismological Laboratory	Division of Geological and Planetary Sciences
2019 – 2021	**California Institute of Technology (Caltech)**, California, USA	
	MSc in Geophysics	Division of Geological and Planetary Sciences
2016 – 2018	**King Abdullah University of Science and Technology (KAUST)**, Saudi Arabia	
	Master of Science	Department of Earth Science and Engineering
2010 – 2015	**National Taiwan University (NTU)**, Taipei, Taiwan	
	Bachelor of Science	Department of Geosciences
	Bachelor of Engineering	Department of Civil Engineering

Appointments

2019 – present	Graduate Student Researcher, Caltech Seismological Laboratory, Caltech
2016 – 2018	Graduate Student Researcher, Crustal Deformation and InSAR Group, KAUST
2014 – 2015	Research Assistant, Institute of Earth Sciences, Academia Sinica
2014	Oversea Visiting Intern, Department of Earth Sciences, Tohoku University
2013	TPC Summer Intern, Carbon Capture and Storage Project, Taiwan Power Company
2012	IES Summer Intern, Institute of Earth Sciences, Academia Sinica

Fellowships, Awards, and Honors

2019 – 2020	Caltech C Scholarship, Caltech
2019 – 2020	Division of Geological and Planetary Sciences Fellowship, Caltech
2017	Outstanding Student Poster and PICO Award (OSPP), European Geosciences Union
2016 – 2018	Graduate Program Fellowship in Earth Science and Engineering, KAUST
2014	NTU Dean's Award (top-ranked students in the university four-year ranking)
2012	NTU Undergraduate Scholarship (tuition waiver for 2 years; equivalent to $4,000)
2012	NTU Presidential Award (top-ranked students in the Department of Geosciences)

Teaching Experience

California Institute of Technology

2022	Co-mentor of Caltech WAVE Fellows Undergraduate Research Program
2021	Teaching Assistant, Ge 193 – Imaging Radar and Applications (Howard Zebker)
2021	Summer Undergraduate Research Fellow (SURF)

Other

2012 – 2014	Middle School Science and Math tutor

Service and Outreach

2021 – 2022	Organizing Committee, Caltech Seismolab Seminar, Caltech
2021	Student Poster Judge, Southern California Earthquake Center Meeting
2014 – present	Speaker at Wormhole Reading Club, Archilife Research Foundation

Publications and Presentations

Refereed Journal Articles

[4] Stephenson O. L., **Liu, Y.-K**, Yunjun Z., Simons M., Rosen P. (2022). The Impact of Plate Motions on Long-Wavelength InSAR-derived Velocity Fields. *in prep to Geophysical Research Letter.*

[3] **Liu, Y.-K.**, Ross, Z. E., Cochran, E. S., & Lapusta, N. (2022). A unified perspective of seismicity and fault coupling along the San Andreas Fault. *Science advances, 8(8), eabk1167.*

[2] Aldaajani, T., Simons, M., Zhang, Y., Bekaert, D., Almalki, K. A., & **Liu, Y.-K.** (2022). Using InSAR Time Series to Monitor Surface Fractures and Fissures in the Al-Yutamah Valley, Western Arabia. *Remote Sensing, 14(8), 1769.*

[1] **Liu, Y.-K.**, Ruch, J., Vasyura-Bathke, H., & Jónsson, S. (2019). Influence of ring faulting in localizing surface deformation at subsiding calderas. *Earth and Planetary Science Letters, 526, 115784.*

Conference Abstracts

[5] **Liu, Y.-K.**, Ross, Z. E., Cochran, E. S., & Lapusta, N., A unified perspective of seismicity and fault coupling along the San Andreas Fault. 2021 AGU Fall Meeting, New Orleans, Louisiana.

[4] **Liu, Y.-K.**, Ross, Z. E., Cochran, E. S., & Lapusta, N., A unified perspective of seismicity and fault coupling along the San Andreas Fault. Poster #089, SCEC Contribution #11496. 2021 SCEC Annual Meeting, Los Angeles, California.

[3] **Liu, Y.-K.,** J. Ruch, H. Vasyura-Bathke & S. Jónsson, Ring-fault activity at subsiding calderas studied from analog experiments and numerical modeling, Abstract V23A-0467, 2017 AGU Fall Meeting, New Orleans, Louisiana, 10–15 December, doi: 10.13140/RG.2.2.34897.43369.

[2] **Liu, Y.-K.**, J. Ruch, H. Vasyura-Bathke and S. Jónsson, Contemporaneous ring fault activity and surface deformation at subsiding calderas studied using analog experiments, Geophys. Res. Abstracts 19, EGU2017-11792, doi: 10.13140/RG.2.2.14764.77442.

[1] Lin, C.-H., T.-C. Lin, Y.-R. Chang, **Y.-K. Liu,** S.-J. Lee, Twin of Chi-Chi earthquake? Numerical simulation study of Changhua and Chelungpu faults earthquake scenarios, 2012 Undergraduate summer project, Academia Sinica, Taiwan.

Master's Thesis Dissertation

Ground deformation related to caldera collapse and ring-fault activity (Dr. Sigurjón Jónsson)
URL: http://hdl.handle.net/10754/627773

Invited Talks

Jónsson, S., W. Xu, J. Ruch, H. Vasyura-Bathke, **Y.-K. Liu** and Y. Aoki, One or two magma chambers under Galápagos volcanoes? Sentinel-1 and ALOS-2 data of the 2015 Wolf eruption offer clues, Fringe 2017.

Software Contributions

[2] Miami InSAR Time-series software in Python (MintPy). *Yunjun et. al., 2019*
github.com/insarlab/MintPy

[1] Interferometric synthetic aperture radar Scientific Computing Environment (ISCE). *Rosen et. al., 2012*
github.com/isce-framework/isce2

Military Service

2015 – 2016	Affiliation:	National Conscription Agency, Taiwan
	Service:	Civilian Workforce
	Unit:	Public Health Center, Xizhi District, New Taipei City