Scott Staniewicz

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EDUCATION

University of Texas at Austin, Austin, TX
Ph.D. in Aerospace Engineering, GPA: 3.97/4.0 (August 2022)

Tufts University, Medford, MA
B.S. in Electrical Engineering and Mathematics, Summa Cum Laude (May 2013)

HONORS AND AWARDS

NSF Graduate Research Fellowship Program, Honorable Mention, 2019
University of Texas Graduate Continuing Fellowship, 2020-2021
Warren A., Alice L. Meyer/M. J. Thompson Endowed Scholarships for Aerospace Eng., 2019-2020
University of Texas GAIN Gold Level Research Award, 2019
SXSW SpaceCRAFT Autonomous Navigation/ Exploration Challenge, 2nd place, 2019
Harry Poole Burden Prize, 2013
Capital One Baseball Academic All-America, Division III First Team, 2013
Adrian Misic Prize Fund, 2013

RESEARCH AND WORK EXPERIENCE

NASA Jet Propulsion Laboratory, Pasadena, CA.
Signal Analysis Engineer (06/2022 – present)

- *Developed algorithms and implemented software for the North American Surface Displacement product, part of the OPERA project*
- *Created numerous open-source software packages for state-of-the-art InSAR time series processing*

Dept. of Aerospace Engineering & Engineering Mechanics, University of Texas at Austin, Austin, TX.
Graduate Research Assistant, Radar Interferometry Group (09/2017– 08-2024)

- *Generated a new surface deformation data set with millimeter-level accuracy and 100-meter spatial resolution over the entire West Texas.*
- *Developed a new method for mitigating atmospheric noise in Interferometric Synthetic Aperture Radar (InSAR) data.*
- *Created a computer vision algorithm for automatic detection of InSAR surface deformation signals.*
- *Implemented open source tools in Python and Julia for InSAR data processing.*

NASA Jet Propulsion Laboratory, Pasadena, CA.
Summer Internship Program (SIP) Intern (05/2021 – 09/2021)

- *Analyzed radar acquisition modes for upcoming NISAR mission using UAVSAR data simulations*
- *Quantified impact on InSAR-derived subsidence, flooding, and infrastructure monitoring applications*
- *Developed and optimized open-source processing chain for future NISAR data products*

Cogo Labs, Cambridge, MA.
Development Manager, *Senior Quantitative Analyst* (06/2014 – 06/2017)

- *Architected Python codebase for marketing campaigns generating $700k+ in monthly revenue.*
- *Managed team of 6, creating Python, Git, and Linux training materials for analysts.*
- *Analyzed 10TB Redshift and Postgres datasets in SQL and larger datasets with Spark and MapReduce.*

The MITRE Corporation, Bedford, MA.
Electrical Engineer (07/2013 – 05/2014)

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- *Created algorithms to combine multiple sensors using Kalman filtering for robust navigation.*
- *Published two technical reports on signal processing features of GPS receivers.*
- *Designed experiments to test robustness of GNSS equipment under varying interference conditions.*

Senior Design Project, Tufts University, Medford, MA.
AR Drone for Structural Health Monitoring (09/2012 – 05/2013)
- *Designed autonomous navigation and image analysis algorithms for Parrot AR Drone*
- *Implemented hardware to interrogate passive RFID tags holding passive sensor data*

Summer Scholars Program, Tufts University, Medford, MA.
Quantifying Collagen in Early Cell Growth (05/2012 – 08/2012)
- *Explored image processing techniques to quantify growth of collagen for biomedical cellular research*
- *Implemented Gabor filters to determine strength and orientation of collagen filaments*

TEACHING EXPERIENCE

Dept. of Aerospace Engineering & Engineering Mechanics, University of Texas at Austin, Austin, TX.
- *COE 301: Introduction to Computer Programming* (Springs 2017, 2018, 2019)
- *ASE 389 P.10 Fundamentals and Geophysical Application of Imaging Radar Systems* (Spring 2021)

PUBLICATIONS, ORAL PRESENTATIONS, AND DATA PRODUCTS

Staniewicz, S., Chen, J. (2024). Quantifying Automatic Detection and of InSAR Surface Deformation at Multiple Scales using Laplacian of Gaussian Filtering. IEEE Transactions on Geoscience and Remote Sensing, *In Review.*

Hennings, P., **Staniewicz, S.**, Smye, K., Chen, J., Horne, E., Nicot, J. P., ... & Scanlon, B. (2023). Development of complex patterns of anthropogenic uplift and subsidence in the Delaware Basin of West Texas and southeast New Mexico, USA. Science of The Total Environment, 903, 166367.

Lee, H. P., **Staniewicz, S.**, Chen, J., Hennings, P., & Olson, J. E. (2023). Subsurface deformation monitoring with InSAR and elastic inversion modeling in west Texas. Geoenergy Science and Engineering, 231, 212299.

Staniewicz, S., Chen, J., Lee, H., Olson, J., Savvaidis, A., Reedy, R., et al. (2020). InSAR reveals complex surface deformation patterns over an 80,000 square kilometer oil-producing region in the Permian Basin. Geophysical Research Letters, 47, e2020GL090151.

Staniewicz, S, Chen, J (2020), InSAR Surface Deformation Data over Permian Basin from Staniewicz et al. (2020), Geophysical Research Letters, https://doi.org/10.18738/T8/AVDBOJ, Texas Data Repository Dataverse, V6

Staniewicz, S., Jones, C., Wang, K. (2021, December). Evaluating the Impact of NISAR Resolution on Critical Infrastructure Monitoring in California's Central Valley. In *AGU* Fall Meeting 2021. AGU.

Staniewicz, S., Chen, J. (2021, December). Quantifying the Probability of False Alarm for Automatically Detected Features in InSAR Deformation Maps. In *AGU* Fall Meeting 2021. AGU.

Staniewicz, S., & Chen, J. (2021, July). Automatic Detection of InSAR Deformation Signals Using a Realistic Tropospheric Turbulence Noise Model. In *2021 IEEE International Geoscience and Remote Sensing Symposium IGARSS* (pp. 2667-2670). IEEE.

Staniewicz, S., Chen, J., Lee, H., Olson, J., Savvaidis, A., & Hennings, P. (2020, December). Cumulative and Transient Surface Deformation Signals in the Permian Basin. In *AGU* Fall Meeting 2020. AGU.

Horne, E., Hennings, P., Savvaidis, A., Morris, A. P., **Staniewicz, S. J.**, & Chen, J. (2020, December). 3D Structural Analysis and Seismogenic Association in the Central Delaware Basin, West Texas. In *AGU* Fall Meeting 2020. AGU.

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Staniewicz, S., Chen, J. (2019, September). Accurate Insar Surface Deformation Mapping Over The Oil-Producing Permian Basin With Automated Tropospheric Outlier Removal. In *IGARSS 2020-2020 IEEE International Geoscience and Remote Sensing Symposium*. IEEE

Staniewicz, S. J., Chen, J., Lee, H., Olson, J. E., Rathje, E., Savvaidis, A., & Hennings, P. (2019, December). InSAR Reveals Complex Uplift and Subsidence Patterns Over 100,000 km^2 of Oil Producing Regions in the Permian Basin. In AGU *Fall Meeting 2019*. AGU

Staniewicz, S., Chen, J., Rathje, E., & Olson, J. (2019, July). Automatic Detection of InSAR Deformation Signals Associated with Hydrocarbon Production and Wastewater Injection using Laplacian of Gaussian Filtering. In *IGARSS 2019-2019 IEEE International Geoscience and Remote Sensing Symposium* (pp. 433-436). IEEE.

LEADERSHIP AND SERVICE

Founding member, Aerospace Engineering Graduate Student Organization (AEGSO)

President, Eta Kappa Nu honor society at Tufts University (2013)

PROFESSIONAL AFFILIATIONS

IEEE Geoscience and Remote Sensing Society, American Geophysical Union, Eta Kappa Nu, Tau Beta Pi