ALEX B. AKINS

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Summary

Scientist and engineer with experience spanning the R&D lifecycle, from ideation and funding to execution and communication. Proficient in scientific programming, data analysis, and project management across disciplines.

Education

Georgia Institute of Technology
Ph.D. in Electrical and Computer Engineering 2020
B.S. in Electrical Engineering 2016

Employment and Affiliations

NASA Jet Propulsion Laboratory
Research Scientist and Engineer, Microwave Instrument Science Group 2020-Present

- Develop software packages which implement radiative transfer, thermal conduction, and atmospheric transport models using Python
- Develop observing system simulations and calibration/validation procedures for current and next-generation satellite missions (with TB data volumes), including remote sensing of ice sheet temperature, ocean salinity, and atmospheric structure using multi-instrument experiments
- Propose and analyze radio telescope observations of solar system objects (120 hours of telescope time awarded)
- Lead projects, contribute to review panels for proposals and publications, and serve on NASA steering committees
- Secured over $1.4M in grant funding as principal investigator and over $2.4M as co-investigator

California Institute of Technology
Visiting Researcher, Division of Geological and Planetary Sciences 2021-Present

- Collaborate with campus faculty on radio telescope observations and modeling of the surfaces of Jupiter's moons and provide mentoring to Caltech graduate students

Georgia Institute of Technology
Graduate Research Assistant, School of Electrical and Computer Engineering 2016-2020

- Designed, assembled, executed, and analyzed laboratory experiments to measure microwave and millimeter-wavelength absorption spectra for analogs of Venus' atmosphere

Undergraduate Research Assistant, School of Electrical and Computer Engineering 2014-2016

- Served as telecommunications subsystem lead for a CubeSat orbital debris reconnaissance project led by the GT Space System Design Laboratory.
- Developed hardware system for a gait pattern analysis device that can be used by spinal cord injury patients led by the GT Butera Lab

NFANT, LLC
Research and Quality Engineering Intern 2015-2016

- Developed accelerometer firmware and drafted QA documents for an IoT infant feeding product.

Los Alamos National Laboratory
Digital Design Intern 2015

- Implemented payload communications FPGA firmware for the Prometheus CubeSats

Selected Publications

18 journal, 48 conference

A. Akins, M. Hofstadter, B. Butler, A. J. Friedson, E. Molter, I. de Pater, and M. Parisi, "Evidence for a Polar Cyclone on Uranus from VLA Observations", *Geophysical Research Letters*, vol. 50, 2023
A. Akins, S. Brown, T. Lee, S. Misra, and S. Yueh, "Simulation Framework and Case Studies for the Design of Sea Surface Salinity Remote Sensing Missions," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 16, 2023
A. Akins, A. Lincowski, V. Meadows, and P. Steffes, "Complications in the ALMA Detection of Phosphine at Venus', *Astrophysical Journal Letters*, vol. 907, 2021

Software Skills

Programming languages (years of use): Python and associated scientific and geophysics computing stacks, including Jupyter, Pandas, Xarray, Dask, Scikit-Learn, PyTorch, Astropy, Cartopy (6), MATLAB (10), shell scripting, including cluster computing (6), C/C++ (3), Fortran (1)
Other: Microsoft Office, Adobe CC, Git, AutoCAD, Ansys EM, Keysight ADS, Comsol, SPICE (both circuit simulation and space mission geometry), CASA, Oracle BI, Logic Pro, LaTeX