

zhanpei fang

about

b. Guangzhou, China
based in Seattle, WA, USA
U.S. citizenship
pronouns: she/her/hers

contact

+1 (425) 749 1949
zhanpei@protonmail.com
Github // **fangzp**
Twitter // **@zhanpeifang**

programming

♥ Python
C++
Java
MATLAB
R
Unix
Mathematica
L^AT_EX
Git

human languages

English (native)
Chinese (~HSK6)
French (~DELFB2)

some coursework

machine learning
artificial intelligence
mining massive data sets
scientific computing
real analysis
fluid mechanics
quantum mechanics
statistical mechanics
general relativity
gravitational astrophysics
cosmology
observational astronomy
analog electronics
quantum materials
AMO physics
quantum optics
biophysics
materials modeling

interests & skills

interests: machine learning on geospatial data; remote sensing for climate change with environmental-justice applications.

skills: astrophysical & geospatial data analysis (**numpy**, **scipy**, **pandas**, **astropy**, **gdal**) + visualization (**matplotlib**, **seaborn**); machine learning, artificial intelligence, deep learning (**sklearn**); Bayesian statistics, Markov-chain Monte Carlo (**emcee**), numerical simulations, HPC.

education

2019–2020 **Stanford University**, M.S. Applied & Engineering Physics Stanford, CA
Emphasis on computational methods for physics.
2015–2019 **Stanford University**, B.S. Physics, B.A. Art Practice Stanford, CA
Astrophysics concentration. GPA (3.8/4.0).

research

6/19–8/19 **Descartes Labs**, Applied Science Intern Santa Fe, NM
Built supervised random-forest-regression model trained on Sentinel-2 multiband spectral imagery, derived vegetation indices, & digital elevation model to predict changes in percent tree canopy cover at 20m resolution across the continental US.
4/18–3/20 **Kavli Institute for Particle Astrophysics & Cosmology**, Researcher Stanford, CA
Worked in Prof Risa Wechsler's GFC group to test predictions of abundance and clustering properties of dark matter halos given by the UniverseMachine simulation. Worked with Prof. Daniel Holz to infer host galaxy properties of merging compact binaries detectable by LIGO; manuscript accepted by *ApJ* [1].
6/17–8/17 **Caltech LIGO Laboratory**, SURF Fellow Pasadena, CA
Working with Dr Rory Smith, quantified computational costs of a gravitational-wave search algorithm that replaces matched filtering with Bayesian hypothesis testing.
7/16–6/17 **Carnegie Institution Department of Global Ecology**, SESUR Fellow Stanford, CA
Working with Profs Chris Field & Katharine Mach, analyzed passive-microwave satellite data to quantify effects of changing sea ice cover upon the vulnerability of an Alaskan indigenous village. Presented at Stanford's Symposia of Undergraduate Research and Public Service (SURPS) & published as first author in *Arctic Science* [2].

teaching

6/20–7/21 **Summer Science Program**, Teaching Assistant Online (usually residential)
Taught celestial mechanics, astronomy, & calculus to 36 high-school students in a 5-week intensive astrophysics research program. Graded problem sets, helped write and debug Python code, and acted as a mentor while ensuring student well-being.

awards

2017 **LIGO Summer Undergraduate Research Fellowship (SURF)**
2016 **Stanford Earth Summer Undergraduate Research (SESUR) Program Grant**
2015–19 **Edmund Maxwell Foundation Scholarship**
2015 **Northshore Council PTSA Scholarship**
2015 **National Merit Scholarship**

publications

- [1] S. Adhikari, M. Fishbach, D. E. Holz, R. H. Wechsler, and Z. Fang, "The binary-host connection: Astrophysics of gravitational wave binaries from their host galaxy properties," *The Astrophysical Journal*, 2020, In press. arXiv: [2001.01025](https://arxiv.org/abs/2001.01025) [[astro-ph](#).GA].
- [2] Z. Fang, P. T. Freeman, C. B. Field, and K. J. Mach, "Reduced sea ice protection period increases storm exposure in Kivalina, Alaska," *Arctic Science*, vol. 4, no. 4, pp. 525–537, 2018, doi: [10.1139/as-2017-0024](https://doi.org/10.1139/as-2017-0024).