JAMILA TAAKI

I am a PhD candidate at the University of Illinois Urbana-Champaign working on data science techniques for exoplanet discovery.
jtaaki2@illinois.edu
xiaziyna.github.io

EDUCATION

PhD candidate | **Electrical and Computer Engineering** 2017 -
University of Illinois Urbana-Champaign
Advisors: Prof. Farzad Kamalabadi and Prof. Athol Kemball

M.Sc. (UK equivalent of MS+BS) | **Astrophysics** 2011 – 2015
Royal Holloway University of London
Advisors: Prof. Glen Cowan and Prof. Stewart Boogert

PUBLICATIONS

"Robust Inference of Sensor-Spatially Correlated Systematic Noise in Kepler Lightcurves" 2023
Taaki, Kamalabadi, Kemball | *in preparation for the Astronomical Journal* | Draft available upon request

"A Search for Exoplanet Candidates in TESS Short Cadence Lightcurves with Bayesian Detection" 2023
Taaki, Kemball, Kamalabadi | *in preparation for the Astronomical Journal* | Draft available upon request

"Bayesian Methods for Joint Exoplanet Transit Detection and Systematic Noise Characterization" 2020
Taaki, Kamalabadi, Kemball | *The Astronomical Journal* | Vol. 159, No. 6

PROPOSALS

Search for New Exoplanets in the TESS Data using Joint Signal Estimation 2021
Illinois Blue Waters allocation: 250K node hour allocation (estimated value $155,075) Co-Investigator

TALKS

Illinois Astrofest 2022
Searching for Exoplanet Transits in TESS (2-min) Raw Lightcurves

RESEARCH PROJECTS

Fourier optical modelling of starshade external occulters for direct exoplanet imaging 2023
Computational/analytic methods for fast optical propagation of star-planet scenes (ongoing)

Efficient GPU computation of Bayesian transit detection 2023
Design and implementation of CUDA codes for Bayesian transit detection search (ongoing)

Data-driven and learning approaches to solar magnetic field extrapolation 2018
Simulations and methods on incorporating data-driven constraints into solar magnetic field extrapolations

Internship: Mars Climate Lab (the Open University) 2015
Advised by Prof. Stephen Lewis, simulated entry landing and descent profiles for landers

TECHNICAL SKILLS

Programming: Python (NumPy, SciPy, Sklearn, TensorFlow, Matplotlib, Pandas, Astropy), Blue Waters/HPC (400K node hours), CUDA, C, Bash, Git, IDL
Mathematics: Detection and estimation theory, probability theory, advanced linear algebra, vector space signal processing, learning theory, machine learning, computational inference, Fourier optics