JAMILA TAAKI

I am a PhD candidate at the University of Illinois Urbana-Champaign working on data science techniques for exoplanet discovery.
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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 Astrophysical 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 Astrophysical 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
Graduate courses: Random processes, detection and estimation theory, computational inference, advanced signal processing, digital imaging, linear algebra, vector space signal processing, deep learning theory, statistical learning theory, information theory, pattern recognition, computational inference