MING-FENG HO

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EDUCATION

University of California, Riverside (UCR), Riverside, United States *2018 - Present*
Ph.D. student in Physics & Astronomy
NASA FINESST Student *2021 - Present*

National Taiwan University (NTU), Taipei, Taiwan *2016 - 2018*
M.S. in Astrophysics

National Taiwan University (NTU), Taipei, Taiwan *2010 - 2014*
B.S. in Physics

RESEARCH INTERESTS

(Keywords) Intergalactic medium, Lyα forest as a cosmological tool, Gaussian processes, emulation, statistical modelling, simulation-based inference, machine learning.

RESEARCH EXPERIENCE

Graduate Student Researcher Riverside, CA
Department of Physics & Astronomy, University of California *September 2018 - Present*

· 1. Multi-fidelity emulation of cosmological simulations.
· 2. Automate the quasar redshift measurements using Gaussian processes.
· 3. Automate the detection of damped Lyα absorbers (DLAs) using Gaussian processes and Bayesian machine learning.

Graduate Research Assistant Taipei, Taiwan
Graduate Institute of Astrophysics, National Taiwan University *August 2016 - February 2018*

· Generate spherical convolutional feature maps on HEALPix grids. (`jibanCat/Conv1d-HEALPix`)

Undergraduate Researcher Taipei, Taiwan
Department of Physics, National Taiwan University *June 2013 - August 2014*

· **Instrumental**: Calibrate 13 element AMiBA array, an interferometer radio telescope using Sunyaev-Zel'dovich effect.

ACADEMIC ACHIEVEMENTS

1. NASA FINESST Fellowship (3 years) *2021 - Present*
2. Provost's Scholars for the Advancement of Physical Sciences (honoured), UC Riverside *2021*
3. Outstanding Junior Graduate Student Researcher Award, UC Riverside *2021*
4. GSA Conference Travel Award, UC Riverside *2019*
5. Student Thesis Award, Physics Society of Taiwan *2019*
6. Dean's Fellowship, UC Riverside *2018*
7. Laureate for Philosophical Treatise, National Taiwan University *2012*

COLLABORATION & MENTORING EXPERIENCE

Project Instructor Riverside, CA
Department of Physics & Astronomy, University of California *September 2020 - Present*

· Mentor a high school student on her science fair project using HPC to analyze DLAs. (jibanCat/gpy_dla_detection)

Team Lead Virtual
Data Science Challenge, Lawrence Livermore National Laboratory (LLNL) *September 2021*

· Lead a team of CS undergrads to build machine learning/deep learning models for star-galaxy classification and asteroid detection.

Research Assistant Taipei, Taiwan
Institute of Chinese Literature and Philosophy, Academia Sinica *March 2018 - August 2018*

· Hired as a programmer for an interdisciplinary text mining and machine learning project between department of Literature, Computer Science, and History. (jibanCat/DigitalHumanities)

TRAINING & ACTIVITIES

1. UC Astronomy Graduate Student Sierra Conference *2019*
2. UC/Lick Observatory Observational Astronomy Workshop *2018*
3. PYCON Taiwan *2018*
4. TIARA Summer School on Astrostatistics and Big Data *2017*
5. High performance computing winter school *2017*
6. Mandatory military service, Taiwan *2014 - 2015*

PUBLICATIONS

Papers

· *Multi-Fidelity Emulation for the Matter Power Spectrum using Gaussian Processes*
Ming-Feng Ho, Simeon Bird, Christian R. Shelton, *submitted to MNRAS, arXiv:2105.01081, 2021.*

· *Damped Lyman-alpha Absorbers from Sloan Digital Sky Survey DR16Q with Gaussian processes*
Ming-Feng Ho, Simeon Bird, and Roman Garnett, *MNRAS, July, 2021.*

· *Automated measurement of quasar redshift with a Gaussian process,*
Leah Fauber, **Ming-Feng Ho**, Simeon Bird, Christian R. Shelton, Roman Garnett, Ishita Korde, *MNRAS, Sep., 2020.*

· *Detecting multiple DLAs per spectrum in SDSS DR12 with Gaussian processes*
Ming-Feng Ho, Simeon Bird, and Roman Garnett, *MNRAS, Jun., 2020..*

· *AMiBA: Cluster Sunyaev-Zel'dovich Effect Observations with the Expanded 13-Element Array*
K.-Y. Lin, et. al. (**M.-F. Ho** in co-authorship), *APJ, Oct., 2016.*

Talks & Conferences

· Contributed Flash Talk: *A Multi-Fidelity Emulator for the Matter Power Spectrum using Gaussian Processes*
Ming-Feng Ho, Simeon Bird, and Christian R. Shelton, Cosmology from home, August 2021, [Video].

· Contributed Talk: *Finding Strong Lyα Absorbers in the Shadows of Quasars with Bayesian Machine Learning*
Ming-Feng Ho, Simeon Bird, and Roman Garnett, Cosmology from home, September 2020, [Video].

· Contributed Talk: *Analyzing Lyman alpha forest with Bayesian machine learning*
Ming-Feng Ho, Simeon Bird, and Roman Garnett, Dark physics workshop, NCTS, Taiwan, January 2020.

· Contributed Talk: *Teaching Computers to Detect Multiple Damped Lyman Alpha Absorbers*
Ming-Feng Ho, Simeon Bird, and Roman Garnett, Galaxy formation workshop, Academia Sinica, Taiwan, December 2019.

SERVICE & OUTREACH

1. Co-I of UC Astronomy Osterbrock Sierra Conference *2021*
2. Secretary of Physics Graduate Student Association *2021*
3. Volunteer in UCR's Stargazing Series: [YouTube Recording] *2020*
4. Volunteer in UCR's Mercury Transit public event *2019*
5. Co-founder of Physics departmental journal, Taiwan *2013*