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Yubo Su

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EDUCATION

CORNELL UNIVERSITY
Ph.D. Astrophysics
Aug 2017–Present
Ithaca, NY | GPA: 4.0

CALIFORNIA INSTITUTE OF TECHNOLOGY
B.S. in Physics, Computer Science
Oct 2012–Jun 2016
Pasadena, CA | GPA: 3.74

SKILLS

PROGRAMMING
Javascript (Node.js) • Python • C/C++
Java • Shell • CUDA • Assembly

SKILLSET
Numerical Simulation
Systems Infrastructure & Optimization
Data Management & Security

TOOLS
MongoDB • PostgreSQL
AWS (EC2, S3, etc.) • Docker
Ansible • Jenkins • Protractor
Matlab • Mathematica • LaTeX
Git • Linux

LANGUAGES
English • Chinese • French

COURSEWORK

PHYSICS
Astrophysical Processes
Advanced Plasma Physics
Computational Physics
Advanced Phase Transitions
Introduction to Particle Physics

COMPUTER SCIENCE
Machine Learning
GPU Programming
Networks and Economics
Relational Databases

TEACHING
Differential Equations
Complex Analysis
C++ Language Workshop

PUBLICATIONS

- Su, Y., & Lai, D. (2020). Dynamics of Colombo's Top: Generating Exoplanet Obliquities from Planet-Disc Interactions. *arXiv preprint arXiv:2004.14380* .
- Su, Y., Lecoanet, D., & Lai, D. (2020). Physics of Tidal Dissipation in Early-Type Stars and White Dwarfs: Hydrodynamical Simulations of Internal Gravity Wave Breaking in Stellar Envelopes. *Monthly Notices of the Royal Astronomical Society* .
- Dong, J. et al (2019). Glass phenomenology in the hard matrix model. *arXiv preprint arXiv:1912.07558* .

RESEARCH

CORNELL UNIVERSITY
Graduate Research Assistant
Aug 2017–Present | Pasadena, CA

- Working with Prof. Dong Lai to explore numerically energy and angular momentum redistribution by nonlinear wave breaking of internal tidal excitations in white dwarfs.
- Also working with Prof. Dong Lai in investigating the role of secular resonances in shaping exoplanet systems via analytical and numerical calculations.
- *High performance computing, numerical fluid dynamics, theoretical astrophysics* .

CALIFORNIA INSTITUTE OF TECHNOLOGY
Undergraduate Research Assistant
Jan 2015–Jun 2016 | Pasadana, CA

- Worked with Prof. Sunil Golwala to quantify detectability of kinetic Sunyaev-Zel'dovich Effect with future sub-millimeter telescopes.
- Used Monte Carlo simulation to estimate nonlinear kSZ detection uncertainties due to imperfect source subtraction.
- Code at `https://github.com/yubo56/Bolocam_Source_Subtraction`.
- *Signal Processing, IDL, Linux* .

EXPERIENCE

BLEND LABS | Software Engineer
July 2016–Present | San Francisco, CA

- Developed AWS S3 file management microservice. Implemented per-file encryption, set up load testing suite and stabilized all microservice deploys.
- Profiled and optimized test suites and app deploy by parallelizing tests, improving build caching and decreasing app size. Average speed up of 3x.
- Developed internal SDK to simplify encoding user transition business logic.
- Stabilized unit and end-to-end tests, reducing failures by 3x to 99%+ stability.
- *Node.js, Angular, Mongo, Python, Docker, Shell, Ansible, AWS* .

AWARDS

2019–22	NASA FINESST	One of 21/188 funded graduate students nationwide in the astrophysics category.
2020	Citadel Data Open Championship	3rd place team.
2019	Citadel Cornell Datathon	2nd place team.