

SAIANEESH KESHAV HARIDAS

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EDUCATION

Johns Hopkins University

August 2016 - Present

Bachelor of Science

Major in Physics

Advanced Coursework: Gravitational Waves, General Relativity, Quantum Mechanics I & II, Statistical Mechanics and Thermodynamics, Physical Cosmology, Numerical Methods for Physicists

Major in Mathematics

Advanced Coursework: Honors Algebra I & II, Honors Analysis I & II, Introduction to Differential Geometry, Methods of Complex Analysis, Differential Equations and Applications

Minor in Computer Science

Advanced Coursework: Advanced Computer Networks, Computer Networks, Parallel Programming

Awards and Honors

Bloomberg Scholar

Bloomberg Distinguished Professor Summer Undergraduate Research Award

EXPERIENCE

Cosmology Large Angular Scale Surveyor (CLASS)

Research Assistant

June 2017 - Present

Primarily working with warm optics and data processing. Major contributions include:

- Working to determine circular polarization limits at 90, 150, and 220 GHz
- Developed and implemented system for aligning the telescope's warm optics
- Oversaw the alignment of all three currently active telescopes
- Created a suite of software tools for packaging and interacting with data
- Created tools for locating and correcting readout errors in data
- Conducted analysis of scan-synchronous features in data
- Developed tools for the statistical analysis of the quality of time-ordered data
- Created tools for data selection which were used for analysis of cosmological circular polarization
- Created catalogue of point sources within the telescope's field of view as well as a tool for visualising regions containing point sources
- Aided in the design and construction of the telescope cages
- Helped design and construct carbon fiber interface for telescope baffle

Additionally I was deployed to the high altitude site in Chile two times during the summer of 2019.

Deployment 1

June 2019 - July 2019

- Installed cages and baffle for new telescope
- Installed warm optics for new telescope
- Constructed and installed carbon fiber interface for baffle

Deployment 2

July 2019 - August 2019

- Installed lenses into new receiver
- Installed new receiver
- Setup for the alignment of the new telescope

Xin Jin Group (JHU CS Department)

Research Assistant

July 2019 - Present

Working to develop an algorithm to produce faster spatial databases using deep reinforcement learning.

Fathom (formerly OTLW)

Technical Advisor

August 2017 - Present

Advising current developer team on how to navigate my previous work and how to implement improvements and new features to the software stack.

CTO

January 2016 - August 2017

Designed and built a generic system for assessment on the Ethereum blockchain. The core algorithms and protocols that I developed are still used today.

GradMe

Lead Back-End Developer

December 2016 - August 2018

Led the development of degree audit software that had improved performance and flexibility over the system used at Johns Hopkins University. The project ended due to the university displaying a lack of interest in adopting our system.

Johns Hopkins Physics Department

Programmer

September 2016 - April 2018

Wrote software for use in courses in the Johns Hopkins University Physics department. This included interactive demos and simulations as well as software to aid in lab courses.

American School of Dubai

IT Specialist

May 2016 to August 2016

Repaired and imaged laptops, setup new server rooms, and performed network administration and maintenance.

SKILLS

Programming	C, C++, Python, P4, Solidity, Java
Hardware	Machining, Soldering, Welding, PC Repair
Software	KST, GetData, Ninkasi, PyTorch, Slurm, SolidWorks, AutoCad
Languages Spoken	English, French (conversational), Tamil, Telugu, Malayalam (conversational)

PUBLICATIONS

Two-year Cosmology Large Angular Scale Surveyor (CLASS) Observations: A Measurement of Circular Polarization at 40 GHz

arXiv:1911.00391

Accepted to The Astrophysics Journal

Primary contribution to this paper was the development of software for data selection and packaging.