

# SUMEET KULKARNI

Graduate Student, The University of Mississippi

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## EDUCATION

Doctor of Philosophy (Ph.D.) Candidate, Physics

The University of Mississippi

August 2017 – Present

Oxford, Mississippi

Bachelor of Science & Master of Science

Indian Institute of Science Education and Research (IISER)

August 2012 – May 2017

Pune, India

## SCIENCE WRITING

### Positions

- Science Journalism Intern, **India Bioscience**

Wrote 3 News and 1 Feature article covering the latest biology research in India during this 3-month online internship, completed over the course of Summer 2019. <https://indiabioscience.org/authors/SumeetKulkarni>

### Media Clips

- Scientific American *Observations***: Mind the [Mass] Gap (October 28, 2019)
- I,Science**: 'Extreme Energies: Gravitational Waves', a guest feature for the Autumn '19 edition of the science magazine of Imperial College, London (December 2019)
- SciWorthy**: 'Using Gas Bubbles in Lava to Predict Ancient Air Pressure' (March 24, 2018)
- IndusDaily**: A short series of blog posts on Gravitational Wave Astrophysics (May 2015-May 2017)

## SCIENCE COMMUNICATION

### Oxford Science Café

December 2018-present

Oxford, MS, USA

- I co-organize the Oxford Science Cafe: monthly public talks and conversations about science for the local community in Oxford, the only event of its kind in north Mississippi.
- Besides emceeing for the main event, I identify and invite potential speakers, help secure funding and publicize it.

### FameLab

Winner, 3rd prize

February 2017

Cheltenham, UK

- Famelab: 'The world's biggest Science Communication competition' challenges participants to Communicate Science in 3 minutes without using any visual aids
- My presentation titled "Cosmic Fireworks" explained one of the latest discoveries in my field: how two neutron stars collide in a *Kilonova* explosion, using a pair of balloons filled with confetti. Winning the 3rd prize here gave me a chance to represent India at the Cheltenham Science Festival
- The Times of India* story: [\[Link\]](#)

### EURAXESS Science Slam

Finalist

October 2016

Bengaluru, India

- To qualify for the science slam, I wrote, directed, composed music for and starred in a short 5-minute educational video on observing sources of gravitational waves like a collision of neutron stars, using optical telescopes. My Final slam performance involved a 10-minute live performance on the same topic.

### Outreach

- Editor of the Humans of LIGO blog: Humans of LIGO is an initiative which celebrates individuals in the LIGO Scientific Collaboration, comprising of more than 1300 scientists and engineers from over 100 institutions and 18 countries worldwide. I interview my fellow researchers and create and edit their profiles for the blog.
- Halloween spooky physics night: I dress up in nerdy costumes, serve liquid nitrogen candy and conduct physics demos like 'the pumpkin drop' at this family-friendly event attended by over 300 locals every year at the UM Department of Physics and Astronomy

## Public Talks

- The British Council's *Cafe Scientifique*: 'The Rise of Artificial Intelligence in Astronomy' at the British Library, Pune to an audience of around 60. Cafe Scientifique provides a unique forum for the discussion of scientific issues in a way that is much more relaxed, informal and accessible than a public lecture. (January 5, 2018)

## TEACHING EXPERIENCE

### Teaching Assistant, Astronomy

📅 August 2017-present

- Teaching the lab component of the Astronomy 103/104 courses for 4 semesters and 11 class sections till date. The labs have an emphasis on teaching over grading
- Conducting observation and astrophotography imaging sessions using the 17" PlaneWave CDK reflector at the Kennon Observatory, The University of Mississippi
- Astronomy open house: For over two years, I have been conducting star-gazing and planet-hunting sessions for the monthly open house at the Kennon observatory, The University of Mississippi.

## RESEARCH EXPERIENCE

### NNETFIX: A Neural Network to 'fix' GW signals affected by short duration glitches.

📅 January 2018 – April 2019

📍 University of Mississippi

- Developed a Multi-layered Perceptron (MLP)-based Neural Network to reconstruct Gravitational Wave signals coincident with short duration noise transients or 'glitches' in LIGO data.
- Presented as a contributed talk in the 2019 APS April meeting; publication under development.

### Random projections in Gravitational Wave searches of compact binaries

DOI: <https://doi.org/10.1103/PhysRevD.99.101503>

📅 May 2016 – May 2017

📍 IUCAA, Pune

- Applied 'Random Projections', a powerful dimensionality reduction technique to improve the computational efficiency of Gravitational Wave searches from compact binaries of neutron stars or black holes
- Published in *Physical Review D, Rapid Communication*

### Photometry and catalog of coadded images for the Catalina Real-time Transient Survey (CRTS)

📅 Spring 2016

📍 IUCAA, Pune

- Created a webpage to serve CRTS images using Python's FLASK toolkit. It is online at <https://crtts.iucaa.in/>

## MULTIMEDIA SKILLS

Microsoft Office Suite

Plotting: Python (matplotlib)

Graphics: Adobe Illustrator, GIMP

LaTeX

Audio/Video: Audacity, Adobe Premier Rush

Web development: HTML, Python FLASK

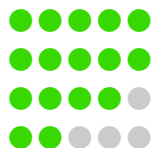
## LANGUAGES

English

Marathi

Hindi

French



## SELECTED CONFERENCES/ WORKSHOPS

### Conference for Science Communication (ComSciCon)-AIP

📅 September 2019

📍 College Park, MD, USA

- Presented a poster on the Humans of LIGO project

### ComSciCon-Atlanta)

📅 March 2020

📍 Athens, GA, USA

### The Cheltenham Science Festival

📅 June 2017

📍 Cheltenham, UK

### EURAXESS Communicating Science Out Of The Lab

📅 August 2015

📍 Mumbai, India

### American Physical Society (APS) Annual Meeting

📅 April 2019

📍 Denver, CO, USA

### LIGO Open Data Workshop

📅 March 2018

📍 Pasadena, CA