

Experience

- 2018–Present** **Las Cumbres Observatory**, *Senior Astrodata Scientist*.
 In charge of all pipelines to analyze data taken by the observatory, approximately 3 million images per year and hundreds of spectra per month. Continued my own scientific programs on peculiar supernovae and gravitational wave follow up. Project Manager for the Scalable Cyber Infrastructure for Multi-Messenger Astronomy (SCIMMA) collaboration. We develop collaboration and coordination tools for the astronomical community to ensure that we can rapidly identify and follow gravitational-wave electromagnetic counterparts. I manage the development of the project across multiple institutions. I am principal investigator (PI) for the Treasure Map, a tool designed to also coordinate the astronomical community to search for electromagnetic counterparts of gravitational wave events. This grant is specifically to bring the Treasure Map to professional cyber-infrastructure standards so that it can be used for future gravitational wave observing runs.
 >269 refereed journal publications: A full publication list is available at <https://cmccully.github.io/publications.pdf>
- 2021–2023** **Mount Vernon Nazarene University**, *Adjunct Faculty*.
 Taught Astronomy 1 and Intro to Data Science
- 2018–2020** **Westmont College**, *Adjunct Faculty*.
 Taught Classical Mechanics, Waves and Optics, and Quantum Mechanics I & 2
- 2015–2018** **Las Cumbres Observatory**, *Network Operations Scientist*.
 Data reduction and analysis, thousands of images per night across 20 telescopes. Integration of the pipeline with other observatory software systems.
- 2014–2018** **Las Cumbres Observatory/UCSB**, *Postdoctoral Scholar*.
 Data reduction and analysis for the Supernova Key Project at LCO. We currently have observations of more than 650 supernovae, with more than 150,000 images. I mentored three graduate students and several undergraduate students. I led studies on supernovae, gravitational lensing, and the first discovered kilonova (see <https://www.cnet.com/news/gravitational-waves-kilonova-explosion-nasa-ligo/>).
- 2008–2014** **Graduate Student**, *Rutgers University*, Department of Physics and Astronomy.
 Studied peculiar supernovae: Spectroscopic and image data reduction in Python and C for a variety of telescopes including the Hubble Space Telescope. I also designed a new efficient computational framework that makes it possible to include hundreds of components in gravitational lens models.

Technical Skills

- Open Source Projects**
- Image Data Reduction Pipeline for LCO data: github.com/lcogt/banzai
 - Fast Cosmic Ray Rejection: github.com/astropy/astroscrappy
 - Image subtraction pipeline for HST: github.com/cmccully/snhst
 - AstroPy Contributor github.com/astropy/astropy
- Languages** Python, Cython, IDL, Matlab, Mathematica, C, C++, Java, VB.net, VBA, TCL
- Technologies** AWS, Kubernetes, Django, Celery, MySQL, SQLite, RabbitMQ, ElasticSearch, MS Access, ArcGIS, Docker, Rancher, IRAF/PyRAF
- Analysis Experience** Image analysis, Monte Carlo Markov Chains, Maximum Likelihood Analysis (Chi-squared minimization), Parallel Computing (OpenMP, Multiprocessing, Beowulf Cluster Computing), Robotic Telescope Operations, Data Visualization, Fourier analysis, Neural Networks, Principle Component Analysis, Gaussian Processes

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