

# Keto Zhang / De Zhang

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## Education

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### University of California, Berkeley

Aug 2015 – Present

Senior Undergraduate

Astrophysics | Data Science

## Experiences

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### Google Lick Predoctoral Fellow

May 2017 – Present

Alex Filippenko Research Group

Involved in the undergraduate research team for Professor Alex Filippenko of UC Berkeley Astronomy Department in the field of supernova. The research is funded for Lick Observatory courtesy of Google.

- Confirm plausible supernovae candidates that came out of an autonomous observation pipeline from the [30" Katzman Automatic Imaging Telescope \(KAIT\)](#)
- Remotely observe confirmed supernovae overnight through the [40" Nickel Telescope](#)

Data from Lick Observatory (KAIT and Nickel) and Keck Observatory are then further processed.

- Build and manage a MySQL photometry database
- Develop a Python package, astroSQL, to provide simple access and analysis of astronomic MySQL database
- Communicate with the postdoc team to determine the features of astroSQL.
- Implement multi-messenger astronomy follow-up pipeline to observe possible electromagnetic counterpart of gravitational-wave events for LIGO-Virgo 3rd Observation Run (O3).

### Summer Research Intern

Jun 2018 – Aug 2018

Solar Energy Research Institute of Singapore

SERIS is a research institute at National University of Singapore (NUS). Involved in the Solar Potential & Energy Meteorology team at SERIS led by Dr. Wilfred Walsh. Main role in solar irradiance forecasting with statistical modeling and machine learning algorithms.

- Generate performance analysis of All-Sky camera predictions against traditional irradiance sensors (photodiode and thermopile)
- Data analysis and linear modeling programmed in Python (pandas, Scikit-learn).
- Time series irradiance forecasting via ARIMA model.
- Help implement backend data flow of All-Sky camera data using MySQL and Python

### Research Intern

Aug 2016 – Dec 2017

Lawrence Berkeley National Lab, Advanced Light Source

Research intern under Dr. Alex Frano and former UC Berkeley Chancellor Robert Birgeneau on Resonant Inelastic X-Ray Scattering (RIXS)

- Develop Python scripts for CCD data analysis\*
- Installation and test of research equipment
- Worked in a synchrotron x-ray radiation facility (Advanced Light Source)

### Desktop Support Technician

Mar 2015 – May 2017

Cal Alumni Association

Tech support intern for the Information Technology department at Cal Alumni Association (UC Berkeley's Alumni Association).

- Manage Google's G Suite as Domain Administrator
- Manage Windows Server Active Directory and Group Policy
- Troubleshoot user's computer and office device issue
- Communicate to user via helpdesk and ticketing system (Spiceworks)
- Train new student interns

### **Media News Broadcast Production**

**Aug 2014 – Aug 2015**

Video producer, editor, special effects, and news anchor for Cordova High News Broadcast

### **Volunteer Community Service**

**Aug 2010 – Aug 2015**

Involved with the following organizations: Key Club, Interact, Police Activity League, GenCorp, and STEM

### **Culinary & Catering Production**

**Aug 2013 – Aug 2015**

Cordova High Culinary Academy (Los Rios Community College Program)

## **Skills**

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### **Sciences**

- Research telescope remote operation
- CCD source extraction, calibration, photometry

### **Computer & Programming**

- Data science (Python)
- Software development (Python)
- CLI/shell and scripting (WSL, UNIX, PowerShell, CMD)
- Version control (Git, GitHub)
- Database setup and administration (MySQL, Python package)
- Typesetting and markup (LaTeX, Markdown, CSS, HTML)
- Familiarity with language and its API (Python, Java, C)
- User Administration (Google Suite, IT Support)

### **Software & Applications**

- Operating Systems (Windows, Linux, MacOS | Android, iOS)
- Office Application (Google Apps, Microsoft Office, Adobe CS/CC)

### **Hospitality Management**

- [ServSafe](#) Food Protection Manager Certified

## Publications

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**Co-author.** *Evolution of charge order topology across a magnetic phase transition in cuprate superconductors*, Kang, M., Pellicciari J., & Frano A. et al. (2019), Nature Physics January 21 2019, [DOI:10.1038/s41567-018-0401-8](https://doi.org/10.1038/s41567-018-0401-8)

**Co-author.** *SN 2017ein and the Possible First Identification of a Type Ic Supernova Progenitor*, Van Dyk, S. D., Zhang W., & Brink, T. G. et al. (2018) ApJ, 860, 2, [DOI:10.3847/1538-4357/aac32c](https://doi.org/10.3847/1538-4357/aac32c)

## Certification & Awards

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ServSafe Managerial Certification	2015
California Department of Education Recognition of Service	2015

## Other Languages

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Conversational Cantonese Chinese

## References

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**Alex Filippenko, PhD, Professor of Astronomy, Group Head for Supernovae Research**

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**WeiKang Zheng, PhD, Postdoctoral Researcher for Type I Supernovae and GRB Survey**

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**Wilfred Walsh, PhD, Research and Business Developer**

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**Alex Frano, PhD, Professor and Physics Experimentalist**

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