

# RUSSELL VAN LINGE

rvanlinge@ucsd.edu

## EDUCATION

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**University of California San Diego - La Jolla, California**

*September 2017 - June 2019*

Bachelors of Science in Physics (Specialization in Astrophysics)

Class of 2019

**GPA:** 3.260

**Palomar College - San Marcos, California**

*August 2014 - June 2017*

**GPA:** 3.39

## RESEARCH INTEREST

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I investigate magnetic fields of ultra-cool, low-mass stars in the radio wavelengths using very long baseline interferometry (VLBI), particularly characterizing both long-term and short-term behaviors and searching for any cycles analogous to our Sun. These observations help in answering the type(s) of dynamo that generates magnetic fields in both partial and fully convective objects. I am also interested in the star-planet interaction and the effects phenomena such as stellar wind and flares do to the habitability of exoplanets.

## PROJECTS

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### **Long-term Radio Monitoring of Two Ultra-Cool, Low-Mass Dwarf Binaries (2016 - Present)**

This project conducted the first well sampled, year long radio monitoring of two ultra-cool dwarf binaries using the Karl Jansky Very Large Array. We wanted to characterize any type of variability as well as investigate any long-term cycling that could be analogous to our Sun's 11-year solar cycle. We also conducted an intensive week of daily observations as well as looked into the behavior found in individual epochs. Van Linge et al. (prep) will be submitted to *Astrophysical Journal* in the upcoming months.

### **Searching for New M-dwarfs in the Dark Energy Survey (Summer 2018)**

*Funded by UC San Diego's William A. Lee Summer Research Scholarship*

There have been many all sky-surveys in northern hemisphere, but only a handful have been done in the south. With the data release of the Dark Energy Survey (DES), it offered an opportunity to fill in the southern sky with low-mass dwarfs. This project set out to use machine learning to search for low-mass stars within the Dark Energy Survey. We started by cross-matching known low-mass stars and red giants from literature to DES and create a training set that would train our algorithm on separating red dwarfs from red giants. Then using the trained algorithm to feed in blind DES data and let it categorize each object based off of its color.

## WORK EXPERIENCE

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**Undergraduate Research Assistant/Data Analyst**

Summer 2016 - June 2019

*Center for Astrophysics and Space Science (CASS)*

*PI: Prof. Adam Burgasser*

- Undergraduate research in Prof. Adam Burgasser and Prof Quinn Konopacky's Stars and Planets Lab where I worked on various projects as well as contributed to Professor Burgasser's [SpeX Prism Library Analysis Toolkit \(SPLAT\): A Data Curation Model](#).

## TECHNICAL STRENGTHS

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### Signal Processing

### Data Analyzing and Visualization

### Bayesian Statistical Modeling

Monte-Carlo Markov Chains, Gaussian Process,  
Machine Learning Techniques

### Software & Tools

Common Astronomical Software Application (CASA),  
Python, Latex, Mathematica

### Scientific/Technical Writing

## ACADEMIC ACHIEVEMENTS/AWARDS

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2018: Recipient of the William A. Lee Summer Research Scholarship, UC San Diego

2017: Physics Chair Challenge Fund, Physics Department, UC San Diego

2016: Certificate of Recognition for UC San Diego End of Summer Research Conference, UC San Diego

2016: Summer Training Academy for Research Success (STARS), UC San Diego

## OUTREACH EVENTS

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Python Coding Workshops; Palomar College - January 2019 to Present

San Diego 2019 Science Expo; Petco Park - February 2019

San Diego 2018 Science Expo; Petco Park - February 2018

UC San Diego InterTribal Youth Physics Outreach - July 2016

UC San Diego IOA Science Innovation Camp Physics Outreach - July 2016

## LIST OF PRESENTATIONS

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233rd American Astronomical Society Conference - January 2019

*Tuning Into Brown Dwarfs: Long-term Radio Monitoring of Two Very Low Mass Dwarfs*  
Poster Presentation

William A. Lee Research Conference; UC San Diego - August 2018

*The Search for Southern Stars: Looking for Low-Mass Stars in the Dark Energy Survey*  
Poster Presentation

Cool Stars 20; Boston University - July/August 2018

*Tuning Into Brown Dwarfs: Long-term Radio Monitoring of Two Very Low Mass Dwarfs*  
Poster Presentation

California Conference for Undergraduate Research, Cal Poly Pomona - November 2017

*Tuning Into Brown Dwarfs: Long-term Radio Monitoring of Two Very Low Mass Dwarfs*  
Oral Presentation

229th American Astronomical Society Conference - January 2017

*Tuning Into Brown Dwarfs: Long-term Radio Monitoring of Two Very Low Mass Dwarfs*  
Poster Presentation

SACNAS Conference - October 2016

*Tuning Into Brown Dwarfs: Long-term Radio Monitoring of Two Very Low Mass Dwarfs*  
Poster Presentation

Cal Poly Pomona Symposium - September 2016

*Tuning Into Brown Dwarfs: Long-term Radio Monitoring of Two Very Low Mass Dwarfs*

Oral Presentation

UC San Diego Summer Research Conference - September 2016

*Tuning Into Brown Dwarfs: Long-term Radio Monitoring of Two Very Low Mass Dwarfs*

Poster Presentation

## REFERENCES

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Prof. Adam Burgasser; UC San Diego | [aburgasser@ucsd.edu](mailto:aburgasser@ucsd.edu)

Dr. Carl Melis; UC San Diego | [cmelis@ucsd.edu](mailto:cmelis@ucsd.edu)

Dr. Peter Williams; Harvard-Smithsonian Center for Astrophysics | [pwilliams@cfa.harvard.edu](mailto:pwilliams@cfa.harvard.edu)