

# Felipe Eduardo Gran Merino

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Ph.D. student at Instituto de Astrofísica  
Pontificia Universidad Católica de Chile  
Millenium Institute of Astrophysics (MAS) graduate student  
European Southern Observatory (ESO Chile) graduate student  
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## PERSONAL DETAILS

*Birthday:* July 20, 1989  
*Citizenship:* Chilean  
*Webpage:* fegran.github.io  
*Family status:* 1 child born September 4, 2012

## EDUCATION

**Ph.D. in Astrophysics:** March 2016 - Present  
Pontificia Universidad Católica de Chile  
Ph.D. candidate: aproved May 2018

**M.Sc. in Astrophysics:** August 2013 - August 2015  
Pontificia Universidad Católica de Chile  
“Distinción Máxima”

**B.Sc. in Astronomy:** March 2018 - August 2013  
Pontificia Universidad Católica de Chile  
“Distinción Máxima”

## RESEARCH INTERESTS

*The Galactic bulge:* stellar populations, structure, globular and open clusters, proper motions  
*Variable stars:* RR Lyrae stars as distance tracers and automatic classification  
*Wide-field surveys:* VVV, Gaia, APOGEE surveys

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## EXPERIENCE

**Ph.D Thesis:** March 2017 - Present  
*Unleashing the inner Galaxy: the proper motion revolution*  
Advisor: Manuela Zoccali (PUC, Chile)  
Advisor: Ivo Saviane (ESO Chile)

**Short internship:** January 2019 - March 2019  
*European Souther Observatory (ESO), Garching bei Munich, Germany*  
Advisor: Elena Valenti (ESO, Germany)

**M.Sc. Thesis:** March 2015 - August 2015  
*Mapping the outer bulge with RR Lyrae stars from the VVV survey*  
Advisors: Manuela Zoccali (PUC, Chile) and Dante Minniti (UNAB, Chile)

**B.Sc. Thesis:** March 2013 - August 2013  
*Long-Period variable stars in the VVV survey*  
Advisors: Dante Minniti (PUC, Chile) and Roberto Saito (UFS, Brazil)

**Summer Practice:** January 2012  
*Commissioning and characterization of the spectrograph at UC Observatory*  
Advisor: Felipe Barrientos (PUC, Chile)

**Technical Staff:** April 2015 - July 2015

*3D Structure, 3D Kinematics and Chemical Abundances  
of the Spheroid and Bar in the Inner Milky Way*  
Proyecto FONDECYT Regular 1150345  
Advisor: Manuela Zoccali (PUC, Chile)

**Technical Staff:** March 2014 - March 2015  
*Stellar Evolution and Variability Studies in the Era of Large Surveys*  
Proyecto FONDECYT Regular 1141141  
Advisor: Márcio Catelan (PUC, Chile)

**Technical Staff:** December 2012 - February 2014  
*VVV Templates Project*  
Proyecto FONDECYT Regular 1110326  
Advisor: Márcio Catelan (PUC, Chile)

**Assistantships:**

- *Data Analysis II (2014B)*
- *Scientific Assistant at UC Observatory (2012A, 2012B, 2013A, 2014A, 2014B)*
- *Experimental Astrophysics (2013B)*
- *Astronomy (2013A)*
- *Stellar Astrophysics (2012B)*

## ACADEMIC GRANTS

**“CONICYT: Beca de asistencia a eventos”:** October 2018 - December 2018  
*Selected for a grant to attend two conferences:*

- IAC XXX Canary Islands Winter School of Astrophysics: Big Data Analysis in Astronomy (November 2018)
- The Galactic Bulge at the crossroads (December 2018)

March 2017 - December 2019  
**“CONICYT: Concurso Becas de Doctorado en Chile”:**  
*Selected for a grant to continue Ph.D. studies*

March 2014 - July 2015  
**“CONICYT: Concurso Becas de Magíster en Chile”:**  
*Selected for a grant to continue M.Sc. studies*

## SKILLS

**Languages:** Spanish (native language)  
English (IELTS certification B2/6.5 overall)

**Programming Language:** Python (advanced)  
ADQL (basic)  
HTML (basic)

**Used Software:** TOPCAT, STILTS, Aladin

**Github Repository:** [github.com/fegran](https://github.com/fegran)

## CONFERENCES AND WORKSHOPS

**Nice WG4 Workshop: A Dynamical View of the Sky**  
Oral presentation: “Hidden in the haystack:  
new globular cluster candidates in the Galactic bulge”  
Nice, France, December 2019

### **Galactic Bulge at the Crossroads**

Oral presentation: “Unleashing the inner Galaxy: the proper motion revolution”  
Pucón, Chile, December 2018

### **XXX Canary Islands Winter School of Astrophysics: Big Data Analysis in Astronomy**

Tenerife, Spain, November 2018

### **ESO Star Cluster Meeting**

Oral presentation: “High-resolution analysis of the globular cluster NGC 6544”  
Santiago, Chile, March 2017

### **Data Driven Modeling of Spectra using The Cannon**

La Serena, Chile, March 2016

### **6<sup>th</sup> VISTA Variables in the Vía Láctea Science Meeting**

Oral presentation: “Outer bulge RR Lyrae stars in the VVV Survey”  
Puerto Varas, Chile, March 2015

### **Second La Serena School for Data Science**

La Serena, Chile, August 2014

### **Harvard-Chile Special Workshop on Data Science**

La Serena and Santiago, Chile, January 2014

## **APPROVED OBERVING PROGRAMS**

### **MUSE at Paranal Observatory**

*Hidden in the haystack: spectroscopic confirmation  
of recently discovered bulge globular clusters*  
PI: F. Gran, December 2018, 2019

### **SPARTAN at SOAR Observatory**

*Hidden in the haystack: characterization of recently  
discovered bulge globular clusters*  
PI: F. Gran, June 2019

### **APOGEE-2S at Las Campanas Observatory**

*Exploring the heart of our Galaxy*  
PI: M. Zoccali, March 2017, 2018

### **VIMOS at Paranal Observatory**

*Kinematics and Chemical Abundances of RR Lyrae variables in the Galactic bulge*  
PI: M. Zoccali, December 2014

### **OSIRIS at SOAR Observatory**

*Follow-up observations of Galactic novae candidates discovered by the VVV Survey*  
PI: R. K. Saito, March 2013

## **PUBLICATIONS**

### **Globular cluster candidates in the Galactic bulge:**

#### **Gaia and VVV view of the latest discoveries**

**Gran, F.** et al. 2019, A&A, 628, 45, 30

*VVV-WIT-07: another Boyajian’s star or a Mamajek’s object?*

Saito, R. K. (**incl. Gran, F.**) 2018, MNRAS, 482, 500

*The VVV Survey RR Lyrae Population in the Galactic Center Region*

Contreras Ramos, R. (**incl. Gran, F.**) 2018, ApJ, 863, 79

*The Orbit of the New Milky Way Globular Cluster FSR1716 = VVV-GC05*  
Contreras Ramos, R. (**incl. Gran, F.**) 2018, ApJ, 863, 78

*VVV Survey Orbital Period Confirmation for the  
Cataclysmic Variable IGR J17014-4306*  
Ferreira, T., R. et al. (**incl. Gran, F.**) 2018, RNAAS, 2, 39

*Proper motions in the VVV Survey:  
Results for more than 15 million stars across NGC 6544*  
Contreras-Ramos, R. et al. (**incl. Gran, F.**) 2017, A&A, 608, 140

*Near-IR period-luminosity relations for pulsating stars in  $\omega$  Centauri (NGC 5139)*  
Navarrete, C. et al. (**incl. Gran, F.**) 2017, A&A, 604, 120

*FSR 1716: A New Milky Way Globular Cluster  
Confirmed Using VVV RR Lyrae Stars*  
Minniti, D. et al. (**incl. Gran, F.**) 2017, ApJ, 838, 14

*A machine learned classifier for RR Lyrae in the VVV survey*  
Elorrieta, F. et al. (**incl. Gran, F.**) 2016, A&A, 595, 82

*Discovery of RR Lyrae Stars in the Nuclear Bulge of the Milky Way*  
Minniti, D. et al. (**incl. Gran, F.**) 2016, ApJ, 830, 14

**Mapping the outer bulge with RRab stars from the VVV Survey**  
**Gran, F.** et al. 2016, A&A, 591, 145

*VVV Survey Observations of a Microlensing Stellar Mass Black Hole Candidate in  
the Field of the Globular Cluster NGC 6553*  
Minniti, D. et al. (**incl. Gran, F.**) 2015, ApJ, 810, 20

*Clustered Cepheid Variables 90 kiloparsec from the Galactic Center*  
Chakrabarti, S., et al. (**incl. Gran, F.**) 2015, ApJ, 802, 4

*Updated Census of RR Lyrae Stars in the Globular Cluster  $\omega$  Centauri*  
Navarrete, C. et al. (**incl. Gran, F.**) 2015, A&A 577, A99

**Bulge RR Lyrae stars in the VVV tile b201**  
**Gran, F.** et al. 2015, A&A, 575, 114

*Variable stars in the VVV globular clusters. I. 2MASS-GC02 and Terzan10*  
Alonso-García, J. et al. (**incl. Gran, F.**) 2015, AJ, 149, 99

*The VVV Templates Project Towards an automated classification  
of VVV light-curves. I. Building a database of stellar variability in the near-infrared*  
Angeloni, R., et al. (**incl. Gran, F.**) 2014, A&A, 567, 100

*A misidentified RR Lyrae variable star in omega Centauri*  
Navarrete, C. et al. (**incl. Gran, F.**) 2013, IBVS, 6078, 1