

# Simón Emmanuel Gutiérrez Brida

## Curriculum Vitae

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### Personal Information

- Full Name: Gutiérrez Brida, Simón Emmanuel
- City: Río Cuarto, Córdoba
- Citizenship: Argentine

### Education

- 2014-2019 **PhD in Computer Science**, Facultad de Matemática, Astronomía y Física, Universidad Nacional de Córdoba, Córdoba, Argentina  
Title: Mutation of Navigational Expressions for Testing and Program Repair. Advisor: Aguirre Nazareno. Description: In this thesis we develop a new mutation operator targeted at navigational expressions. Our operator extends the traditional operators set allowing the representation of new defect types in the context of mutation testing. In the context of automatic program repair, our operator increases the repairability.
- 2009-2014 **Licenciatura in Computer Science (5 years degree)**, Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina

### Fellowships/Scholarships

- 2019-2021 **Posdoctoral Fellowship**, Funded by Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET)
- 2014-2019 **PhD Scholarship**, Funded by Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET)
- 2012 **Scholarship for students in the last years of Information and Communication Technologies related University careers.**, Funded by Agencia Nacional de Promoción Científica y Tecnológica
- 2011 **Scientific stimulation Scholarship.**, *Allows undergrad students to get involved in research projects.*, Funded by Consejo Interuniversitario Nacional

### Research projects

#### Funded Research Projects

- 2019 **Improving software testing through automatic translation of test inputs to API calls.**, *Funded by Argentina's Agency for Promotion of Research, Technological Development and Innovation (Agencia I+D+i), through FONCyT.*, PICT 601 2021 grant  
Principal Investigator - Project duration: 2 years

#### Colaborator

- 2016-2018 **Formal methods for Software Specification, Design, and Verification.**, *PPI*, Granted by Secretaria de Ciencia y Técnica, Universidad Nacional de Río Cuarto, Project Director Dr. Nazareno Aguirre
- 2012-2015 **Formal methods for Software Specification, Design, and Verification.**, *PPI*, Granted by Secretaria de Ciencia y Técnica, Universidad Nacional de Río Cuarto, Project Director Dr. Nazareno Aguirre

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## Employment Background

### Academic / Teaching positions

- Lecturer **Guangdong Technion-Israel Institute of Technology, Shantou, Guangdong Province, China**, March 2023- March 2024  
Teacher in charge of 2 courses in the first semester; Teacher in charge of 2 courses in the second semester; Teaching Assistant in charge of tutorials and workshops of one course in the second semester.
- Senior Teaching Assistant **Computer Science Department at Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina.**, February 2024- August 2024
- Teaching Assistant **Computer Science Department at Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina.**, August 2024- Present; April 2019- February 2023; April 2018- December 2018; August 2015- March 2017
- Student Teaching Assistant **Computer Science Department at Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina.**, 2008-2012

### Research Positions

- 2023- Present **Assistant Researcher at Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), CONICET, work place at Computer Science Department at Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina.**  
Appointed on November 2022, Accepted position on March 1st 2024
- April 2019- April 2021 **Posdoctorate at Universidad Nacional Río Cuarto, Research title: Automatic reconstruction of Objects from APIs.**, Computer Science Department at Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina.
- 2019- Present **Junior Researcher at MFIS, Formal Methods & Software Engineering research group.**, Computer Science Department at Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina.  
<https://mfis.dc.exa.unrc.edu.ar>

### Industry

- November 2013- April 2014 **Intern C++ developer in image processing, and pattern recognition, Yeti Media, California**

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## Teaching experience

- Lecturer **Guangdong Technion-Israel Institute of Technology at Shantou, Guangdong Province, China**, *Lecturer in charge of preparing both theoretical and practical class materials; preparing exercises; project design; exam design and evaluation; and lecturer (in charge of theoretical classes, workshops and laboratories)*, Courses: Introduction to Systems Programming (104824), Computer Organization and Programming (104818), Digital Systems and Computer Structure (104952)
- T. Assistant **Guangdong Technion-Israel Institute of Technology at Shantou, Guangdong Province, China**, *Tutor in charge of workshops and laboratories*, Courses: Introduction to Computer Science M (104814)
- Senior T. Assistant **University of Rio Cuarto, Argentina.**, *Managing Lab classes; Assisting in exercises and projects design, testing, and evaluation; Exams question proposal; Additional course content (examples and wikis); Substitute lecturer when needed*, Courses: Introduction to Algorithms (3375)

- T. Assistant **University of Rio Cuarto, Argentina.**, *Managing Lab classes; Assisting in exercises and projects design, testing, and evaluation; Exams question proposal; Additional course content (examples and wikis)*, Courses: Advanced Programming (1948), Data Structures and Algorithms (3301/3325), Algorithms Design (3302/3326), Computability and Complexity (3307), Project (1998), Distributed and Outsourced Software Engineering (3339)
- Student T. **University of Rio Cuarto, Argentina**, *Managing Lab classes; Assisting in exercises and projects design, testing, and evaluation*, Courses: Introduction to Algorithms (3300), Computer architecture (1949), Advanced Programming (1948), Data Structures and Algorithms (3301/3325), Algorithms Design (3302/3326)

## Publications

### International Conferences

- 2024 **An Empirical Study on the Suitability of Test-based Patch Acceptance Criteria.**, Luciano Zemín, Ariel Godio, César Cornejo, Renzo Degiovanni, Simón Gutiérrez Brida, Germán Regis, Nazareno Aguirre, Marcelo Frias, Accepted for publication at ACM Transactions on Software Engineering and Methodology (TOSEM)  
Full Research Paper. (Q1 Scimago)
- 2024 **An Analysis of the Impact of Field-Value Instance Navigation in Alloy's Model Finding.**, César Cornejo, María Marta Novaira, Sonia Permigiani, Nazareno Aguirre, Marcelo F. Frias, Simón Gutiérrez Brida, Germán Regis, Rigorous State-Based Methods - 10th International Conference. (ABZ 2024), Bergamo, Italy  
Full Research Paper. (C CORE2023)
- 2022 **ICEBAR: Feedback-Driven Iterative Repair of Alloy Specifications.**, Simón Gutiérrez Brida, Germán Regis, Guolong Zheng, Hamid Bagheri, ThanhVu Nguyen, Nazareno Aguirre, Marcelo F. Frias, 37th International Conference on Automated Software Engineering. (ASE 2022), Michigan, US  
Full Research Paper. (A\* CORE2023)
- 2022 **ATR: template-based repair for Alloy specifications.**, Guolong Zheng, ThanhVu Nguyen, Simón Gutiérrez Brida, Germán Regis, Marcelo F. Frias, Nazareno Aguirre, Hamid Bagheri, 31st International Symposium on Software Testing and Analysis (ISSTA 2022), Virtual, South Korea  
Full Research Paper. (A CORE2023)
- 2021 **FLACK: Localizing Faults in Alloy Models.**, Guolong Zheng, ThanhVu Nguyen, Simón Gutiérrez Brida, Germán Regis, Marcelo F. Frias, Nazareno Aguirre, Hamid Bagheri, 36th International Conference on Automated Software Engineering (ASE 2021), Melbourne, Australia  
Tool Paper. (A\* CORE2021)
- 2021 **BeAFix: An Automated Repair Tool for Faulty Alloy Models.**, Simón Gutiérrez Brida, Germán Regis, Guolong Zheng, Hamid Bagheri, ThanhVu Nguyen, Nazareno Aguirre, Marcelo F. Frias, 36th International Conference on Automated Software Engineering (ASE 2021), Melbourne, Australia  
Tool Paper. (A\* CORE2021)
- 2021 **Artifact of 'FLACK: Counterexample-Guided Fault Localization for Alloy Models'.**, Guolong Zheng, ThanhVu Nguyen, Simón Gutiérrez Brida, Germán Regis, Marcelo F. Frias, Nazareno Aguirre, Hamid Bagheri, 43rd International Conference on Software Engineering (ICSE 2021), Madrid, Spain  
Artifact Paper.

- 2021 **FLACK: Counterexample-Guided Fault Localization for Alloy Models.**, *Guolong Zheng, ThanhVu Nguyen, Simón Gutiérrez Brida, Germán Regis, Marcelo F. Frias, Nazareno Aguirre, Hamid Bagheri*, 43rd International Conference on Software Engineering (ICSE 2021), Madrid, Spain  
Full Research Paper. (A\* CORE2021)
- 2021 **Artifact of Bounded Exhaustive Search of Alloy Specification Repairs.**, *Guolong Zheng, ThanhVu Nguyen, Simón Gutiérrez Brida, Germán Regis, Marcelo F. Frias, Nazareno Aguirre, Hamid Bagheri*, 43rd International Conference on Software Engineering (ICSE 2021), Madrid, Spain  
Artifact Paper.
- 2021 **Bounded Exhaustive Search of Alloy Specification Repairs.**, *Simón Gutiérrez Brida, Germán Regis, Guolong Zheng, Hamid Bagheri, ThanhVu Nguyen, Nazareno Aguirre, Marcelo F. Frias*, 43rd International Conference on Software Engineering (ICSE 2021), Madrid, Spain  
Full Research Paper. (A\* CORE2021)
- 2019 **On the effect of object redundancy elimination in randomly testing collection classes.**, *P. Ponzio, V. Bengolea, S. Gutiérrez Brida, G. Scilingo, N. Aguirre, M. Frias*, 11th International Workshop on Search-Based Software Testing (SBST 2018), Gothenburg, Sweden  
Full Research Paper.
- 2017 **An Analysis of the Suitability of Test-based Patch Acceptance Criteria**, *L. Zemín, S. Gutiérrez, A. Godio, C. Cornejo, R. Degiovanni, G. Regis, N. Aguirre and M. Frias*, 10th International Workshop on Search-Based Software Testing (SBST 2017), Buenos Aires, Argentina  
Full Research Paper.
- 2017 **Boolean expression extender - A mutation operator for strengthening and weakening boolean expressions**, *S. Gutiérrez Brida, G. Scilingo*, 2017 XLIII Latin American Computer Conference (CLEI 2017), Córdoba, Argentina  
Full Research Paper. (C ERA2010)
- 2017 **DynAlloy Analyzer: A Tool for the Specification and Analysis of Alloy Models with Dynamic Behaviour**, *G. Regis, C. Cornejo, S. Gutiérrez Brida, M. Politano, F. Raverta, P. Ponzio, N. Aguirre, J.P. Galeotti, M. Frias*, 11th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2017), Paderborn, Alemania  
Tool Paper. (B CORE2017)

#### National Conferences

- 2019 **Detección de objetos espurios en generación automática de entradas**, *Simón Gutiérrez Brida, Pablo Ponzio, Valeria Bengolea, y Nazareno Aguirre*, en Congreso Argentino de Ciencias de la Computación 2019 (CACIC 2019), Río Cuarto, Argentina
- 2019 **Implementación Básica de Typestates en Rust**, *Marcelo Arroyo, Simón Gutiérrez Brida, Pablo Ponzio*, en Congreso Argentino de Ciencias de la Computación 2019 (CACIC 2019), Río Cuarto, Argentina
- 2012 **Criterios de Cobertura sobre RepOK para Reducir Test Suites Exhaustivas Acotadas: Estudio de Casos**, *V. Bengolea, S. Gutiérrez Brida y N. Aguirre*, en Congreso Argentino de Ciencias de la Computación 2012 (CACIC 2012), Bahía Blanca, Argentina

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## Article Evaluation

#### International Conferences

- 2022 **FSE/ESEC 2022 Artifacts Track**, *Evaluation of two Artifact submissions*

#### National and Regional Conferences

- 2019 **SLISW 2019**, *Evaluation of un article in Conferencia Latinoamericana de Informática*
- 2017 **SLISW 2017**, *Evaluation if two articles in Conferencia Latinoamericana de Informática*
- 2017 **ASSE 2017**, *Evaluation of two articles in Conferencia Latinoamericana de Informática*

## Undergraduate Thesis Supervision

- 2017 - 2019 **Leandro Buttignol.**, *Comparison of Automatic test generation tools.*, Co-supervised with Pablo Ponzio (Supervisor), and Valeria Bengolea (Co-Supervisor)

## Evaluation Committees Participation

### Student Teaching Assistant

- 2012 **In student teaching assistant selection for Computer Science Department.**, Universidad Nacional de Río Cuarto, Córdoba, Argentina.

## Attendance to Scientific Meetings

- 2021 **ICSE 2021**, 43rd International Conference on Software Engineering, Madrid, Spain
- 2017 **ICSE 2017**, 39th International Conference on Software Engineering, Buenos Aires, Argentina
- 2014 **JAIIO/CLEI 2017**, 46 Jornadas Argentinas de Informática / 43 Conferencia Latinoamericana de Informática, Universidad Tecnológica Nacional, Córdoba, Argentina
- 2008-2019 **Computer Science Summer School RIO**, editions 2008, 2009, 2010, 2011, 2012, 2013, 2015, 2016, 2017, 2018, 2019, y 2020, Computer Science Deptarment, Universidad Nacional de Río Cuarto

## Administrative positions

- 2017-2022 **Member of Computer Science department council in representation of graduate students.**, Departamento de Computación de la Universidad Nacional de Río Cuarto.

## Scientific-Technological events participation and organization

- 2016-2020 **Computer Science Summer School RIO**, *Universidad Nacional de Río Cuarto*, Member of organizing committee
- 2017 **ICSE 2017 39th International Conference on Software Engineering**, *Buenos Aires, Argentina*, Student Volunteer