

Curriculum Vitae

Personal Information

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|------------------------|---|
| Name | Rojas, José Miguel |
| Nationality | Bolivian |
| Date of birth | 13 January 1984 |
| Telephone | (+44) 7477537139 |
| Emails | jmrs84@gmail.com, j.rojas@leicester.ac.uk |
| Google Scholar Profile | https://scholar.google.co.uk/citations?user=NeuqUtcAAAAJ |
| DBLP Profile | http://dblp.uni-trier.de/pers/hd/r/Rojas:Jos=eacute=_Miguel |

Education

| | |
|-----------------------|--|
| Dates | 10/2009 – 12/2013 |
| Institution | Technical University of Madrid, Spain |
| Degree awarded | <i>Phd. in Software and Systems</i> |
| Thesis title | Test Case Generation in Object Oriented Programming |
| Dates | 02/2008 – 09/2009 |
| Institution | Autonomous University of Madrid, Spain |
| Study | <i>Postgraduate Study in Computer Engineering and Telecommunications</i> |
| Dates | 04/2005 – 12/2005 |
| Institution | Gabriel René Moreno University, Bolivia |
| Qualification awarded | <i>Postgraduate Diploma in Higher Education</i> |
| Dates | 02/2001 – 12/2005 |
| Institution | Gabriel René Moreno University, Bolivia |
| Degree awarded | <i>Computer Engineer</i> |

Work Experience

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|-----------------------------|---|
| Dates | 12/2017 – present |
| Position | Lecturer / Assistant Professor |
| Institution | Department of Informatics, University of Leicester, United Kingdom |
| Dates | 09/2017 – 12/2017 |
| Position | Distance Learning Associate Tutor |
| Institution | Department of Informatics, University of Leicester, United Kingdom |
| Dates | 02/2014 – 11/2017 |
| Position | Research Associate in Software Testing |
| Institution | Department of Computer Science, The University of Sheffield, United Kingdom |
| Dates | 05/2013 – 08/2013 |
| Occupation or position held | Google Summer of Code Software Developer |
| Institution | Google and NASA Ames Research Center, Mountain View, USA |
| Supervisors | Prof. Corina Păsăreanu and Prof. Willem Visser |
| Dates | 09/2012 – 12/2012 |
| Occupation or position held | Predoctoral Research Intern |
| Institution | NASA Ames Research Center, Mountain View, CA USA |

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| Host Researcher | Prof. Corina Păsăreanu |
| Dates | 10/2009 – 12/2013 |
| Occupation or position held | Predoctoral Research Grant, awarded by the Spanish Ministry of Science and Education under the National Program for Training Human Resources |
| Institution | Department of Computer Science - Technical University of Madrid, Spain |
| Dates | 12/2007 – 08/2009 |
| Occupation or position held | IT Trainee |
| Institution | IT Department - Autonomous University of Madrid, Spain |
| Dates | 06/2006 – 11/2007 |
| Occupation or position held | .NET Developer |
| Institution | ABJ Consulting, Bolivia |
| Further Teaching | |
| Dates | 14/03/2016 – 17/03/2016 |
| Role and Course Taught | Visiting Lecturer; Automated Software Testing (Masters Seminar) |
| Institution | Technical University of Madrid, Spain |
| Dates | 01/12/2014 – 13/12/2014 |
| Role and Course Taught | Visiting Lecturer; Software Testing (Masters Module) |
| Institution | Gabriel René Moreno University, Bolivia |
| Dates | 09/2013 – 01/2014 |
| Role and Course Taught | Teaching Assistant; Algorithms and data structures (Undergraduate Module) |
| Institution | Technical University of Madrid, Spain |
| Dates | 02/2006 – 12/2006 |
| Occupation or position held | Mathematics Laboratory Assistant |
| Institution | Gabriel René Moreno University, Bolivia |
| Dates | 02/2004 – 12/2005 |
| Role and Courses Taught | Teaching Assistant; Principles of Informatics, Compilers (Undergraduate Modules) |
| Institution | Gabriel René Moreno University, Bolivia |
| Research Publications | |
| 2019 | <p>Gordon Fraser, Alessio Gambi, Marvin Kreis, and José Miguel Rojas. Gamifying a Software Testing Course with Code Defenders. In <i>ACM Technical Symposium on Computer Science Education, (SIGCSE)</i>, p. 571–577. ACM, 2019.</p> <p>Gordon Fraser and José Miguel Rojas. Software Testing. In Sungdeok Cha, Richard N. Taylor, and Kyo C. Kang, editors, <i>Handbook of Software Engineering</i>, p. 123–192. Springer International Publishing, 2019.</p> |
| 2018 | <p>Sina Shamshiri, José Miguel Rojas, Luca Gazzola, Gordon Fraser, Phil McMinn, Leonardo Mariani, and Andrea Arcuri. Random or Evolutionary Search for Object-Oriented Test Suite Generation? <i>Software Testing, Verification and Reliability (STVR)</i>, 28(4):e1660, 2018.</p> |

- Gordon Fraser, Alessio Gambi, and José Miguel Rojas.
A Preliminary Report on Gamifying a Software Testing Course with the Code Defenders Testing Game.
In *European Conference of Software Engineering Education (ECSEE)*, p. 50–54. ACM, 2018.
- Yan Ge Marcelo Medeiros Eler, José Miguel Rojas and Gordon Fraser.
Automated Accessibility Testing of Mobile Apps.
In *IEEE Int. Conference on Software Testing, Verification and Validation (ICST)*, p. 116–126. IEEE, 2018.
- Sina Shamshiri, José Miguel Rojas, Juan Pablo Galeotti, Neil Walkinshaw, and Gordon Fraser.
How Do Automatically Generated Unit Tests Influence Software Maintenance?
In *IEEE Int. Conference on Software Testing, Verification and Validation (ICST)*, p. 250–261. IEEE, 2018.
- 2017** Ermira Daka, José Miguel Rojas, and Gordon Fraser.
Generating Unit Tests with Descriptive Names Or: Would You Name Your Children Thing1 and Thing2?
In *ACM Int. Symposium on Software Testing and Analysis (ISSTA)*, p. 57–67. ACM, 2017.
- José Miguel Rojas, Thomas White, Benjamin Clegg, and Gordon Fraser.
Code Defenders: Crowdsourcing Effective Tests and Subtle Mutants with a Mutation Testing Game.
In *Int. Conference on Software Engineering (ICSE)*, p. 677–688, 2017.
ACM Distinguished Paper Award.
- Benjamin Clegg, José Miguel Rojas, and Gordon Fraser.
Teaching Software Testing Concepts Using a Mutation Testing Game.
In *Int. Conference on Software Engineering (ICSE)(SEET)*, p. 33–36, 2017.
- José Miguel Rojas and Gordon Fraser.
Is Search-based Test Generation Research Stuck in a Local Optimum?
In *Int. Workshop on Search-Based Software Testing (SBST)*, p. 51–52, 2017.
- Gordon Fraser, José Miguel Rojas, Jose Campos, and Andrea Arcuri.
EvoSuite at the SBST 2017 Tool Competition.
In *Int. Workshop on Search-Based Software Testing (SBST)*, p. 39–42, 2017.
- 2016** José Miguel Rojas, Gordon Fraser, and Andrea Arcuri.
Seeding strategies in search-based unit test generation.
Software Testing, Verification and Reliability (STVR), 26(5):366–401, 2016.
- José Miguel Rojas, Mattia Vivanti, Andrea Arcuri, and Gordon Fraser.
A detailed investigation of the effectiveness of whole test suite generation.
Empirical Software Engineering (EMSE), p. 1–42, 2016.
- José Miguel Rojas and Gordon Fraser.
Teaching Mutation Testing using Gamification.
In *European Conference of Software Engineering Education (ECSEE)*. Shaker Verlag, 2016.
- José Miguel Rojas and Gordon Fraser.
Code Defenders: A Mutation Testing Game.
In *Int. Conference on Software Testing, Verification and Validation Workshops (MUTATION ICSTW)*, p. 162–167. IEEE, 2016.

- 2015** Sina Shamshiri, René Just, José Miguel Rojas, Gordon Fraser, Phil McMinn, and Andrea Arcuri.
Do Automatically Generated Unit Tests Find Real Faults? An Empirical Study of Effectiveness and Challenges.
In *IEEE/ACM Int. Conference on Automated Software Engineering (ASE)*, p. 201–211. ACM, 2015.
ACM SIGSOFT Distinguished Paper Award.
- Sina Shamshiri, José Miguel Rojas, Gordon Fraser, and Phil McMinn.
Random or Genetic Algorithm Search for Object-Oriented Test Suite Generation?
In *Genetic and Evolutionary Computation Conference (GECCO)*, p. 1367–1374. ACM, 2015.
Best Paper Award (SBSE-SS Track).
- José Miguel Rojas, Gordon Fraser, and Andrea Arcuri.
Automated unit test generation during software development: a controlled experiment and think-aloud observations.
In *ACM Int. Symposium on Software Testing and Analysis (ISSTA)*, p. 338–349. ACM, 2015.
- José Miguel Rojas, José Campos, Mattia Vivanti, Gordon Fraser, and Andrea Arcuri.
Combining Multiple Coverage Criteria in Search-Based Unit Test Generation.
In *Int. Symposium on Search Based Software Engineering (SSBSE)*, vol. 9275 of *LNCS*, p. 93–108. Springer, 2015.
Best Paper Award (Industry-relevant SBSE results).
- 2014** Elvira Albert, Puri Arenas, Miguel Gómez-Zamalloa, and José Miguel Rojas.
Test Case Generation by Symbolic Execution: Basic Concepts, a CLP-Based Instance, and Actor-Based Concurrency.
In *14th Int. School on Formal Methods for the Design of Computer, Communication, and Software Systems (SFM Advanced Lectures)*, vol. 8483, p. 263–309. Springer International Publishing, 2014.
- 2013** Elvira Albert, María García de la Banda, Miguel Gómez-Zamalloa, José Miguel Rojas, and Peter Stuckey.
A CLP Heap Solver for Test Case Generation.
Theory and Practice of Logic Programming (TPLP) (ICLP 2013 SI.), 13(4-5):721–735, 2013.
- José Miguel Rojas and Corina S. Păsăreanu.
Compositional Symbolic Execution through Program Specialization.
In *BYTECODE 2013*, 2013.
Peer-reviewed workshop (co-located with ETAPS 2013) with no formal proceedings.
- 2012** Elvira Albert, Diego Esteban Alonso-Blas, Puri Arenas, Jesús Correas, Antonio Flores-Montoya, Samir Genaim, Miguel Gómez-Zamalloa, Abu Naser Masud, German Puebla, José Miguel Rojas, Guillermo Román-Díez, and Damiano Zanardini.
Automatic Inference of Bounds on Resource Consumption.
In *Int. Symposium on Formal Methods for Components and Objects (FMCO, Revised Lectures)*, vol. 7866 of *LNCS*, p. 119–144. Springer, 2012.
- José Miguel Rojas and Miguel Gómez-Zamalloa.
A Framework for Guided Test Case Generation in Constraint Logic Programming.
In *Int. Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR)*, vol. 7844 of *LNCS*, p. 176–193. Springer, 2013.
- Elvira Albert, Bjarte M. Østvold, and José Miguel Rojas.
JMS2ABS: Automated Extraction of Abstract Behavioural Models from JMS Applications.
In *Formal Methods for Industrial Critical Systems (FMICS)*, vol. 7437 of *LNCS*, p. 16–31. Springer, 2012.

- 2011** Elvira Albert, Miguel Gómez-Zamalloa, and José Miguel Rojas.
Resource-driven CLP-based Test Case Generation.
In *Int. Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR)*, vol. 7225 of *LNCS*, p. 25–41. Springer, 2012.
- Carmen Navarrete, Marina de la Cruz, Eloy Anguiano, Alfonso Ortega, and José Miguel Rojas.
Parallel Simulation of NEPs on Clusters.
In *IEEE/WIC/ACM Int. Conferences on Web Intelligence and Intelligent Agent Technology (WI-IAT)*, p. 171–174. IEEE Computer Society, 2011.
- 2010** Elvira Albert, Miguel Gómez-Zamalloa, José Miguel Rojas, and Germán Puebla.
Compositional CLP-Based Test Data Generation for Imperative Languages.
In *Int. Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR)*, vol. 6564 of *LNCS*, p. 99–116. Springer, 2011.
- José Miguel Rojas, Marina de la Cruz Echeandía, and Alfonso Ortega de la Puente.
Towards the Automatic Programming of H Systems: jHsys, a Java H System Simulator.
In *Int. Conference on Practical Applications of Agents and Multiagent Systems (PAAMS)*, p. 387–394. Springer, 2010.
- 2009** Emilio del Rosal, José Miguel Rojas, Rafael Núñez, Carlos Castañeda, and Alfonso Ortega de la Puente.
On the Solutions of NP-Complete Problems by Means of jNEP Run on Computers.
In *International Conference on Agents and Artificial Intelligence (ICAART)*, p. 605–612. INSTICC Press, 2009.

Academic Service

Program Chair
Program Committee Member

Sub-reviewer
Journal Edition
Journal Reviewer

SBST'19, SSBSE'18 Challenge Track, MUTATION'18, MUTATION'17
SSBSE'19, ASE'19, ICST'19 (Industry Track), ASE'18, ISSTA'18(AE), A-MOST'17, AST'17, GECCO'17, ICST'17 (Tool Papers Track), ISSTA'17 (AE), SBST'17, A-MOST'16, AST'16, CHESE'16, GECCO'16, ISSTA'16 (AE), MUTATION'16, ICST'15 (Tool Track)
TAP'17, iFM'13, KDPD'13, NFM'13, TACAS'13, WFLP'13, SCAM'10
STVR (MUTATION 2016-17 Special Issue)
EMSE, JSS, SCICO, SCP, STVR, TSE, TOSEM

Research Activities

Activity
Institution
Host Researcher
Dates

Research visit
University of Buenos Aires, Argentina
Dr. Juan Pablo Galeotti
18–22/04/2016

Activity
Institution
Host Researcher
Dates

Research visit
Technical University of Madrid, Spain
Prof. Natalia Juristo
14–18/03/2016

Activity
Organiser
Dates

10th TAROT International Summer School on Training And Research On Testing
Facultade de Engenharia, Universidade do Porto (Location: Porto, Portugal)
29/06–04/07/2014

Activity
Organiser
Dates

8th LASER Summer School on Soft. Eng.: Tools for Practical Software Verification
ETH Chair of Software Engineering (Location: Elba Island, Italy)
04–10/09/2011

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| Activity | Research visit |
| Institution | KTH Royal Institute of Technology, Stockholm, Sweden |
| Host Researcher | Prof. Mads Dam |
| Dates | 05/2011 – 07/2011 |

Software Projects

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|-------------|--|
| Name | Code Defenders |
| Description | Mutation testing game for software testing education and crowdsourcing |
| URL | code-defenders.org |
| Role | Lead developer |

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| Name | EvoSuite |
| Description | Search-based unit test generation for Java |
| URL | evosuite.org |
| Role | Developer |

Past Projects

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| Name | PET |
| Description | Test data generation using symbolic execution |
| URL | costa.ls.fi.upm.es/pet |
| Role | Developer |

Research Projects

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|---------------------------|---|
| Project title | GReaTest: <i>Growing Readable Software Tests</i> |
| Financing Organisation | Engineering and Physical Sciences Research Council (EPSRC) (EP/N023978/1) |
| Participant Organisations | University of Sheffield, Barclays Bank Plc, Google, Microsoft |
| Duration | 03/2016 – 02/2020 |
| Main Researcher | Dr. Gordon Fraser |

Past Projects

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| Project title | EXOGEN: <i>Explorative Test Oracle Generation</i> |
| Financing Organisation | Engineering and Physical Sciences Research Council (EPSRC) (EP/K030353/1) |
| Participant Organisations | University of Sheffield, Google, Microsoft |
| Duration | 02/2014 – 08/2015 |
| Main Researcher | Dr. Gordon Fraser |

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|---------------------------|---|
| Project title | PROMETIDOS-CM: <i>Madrid Program in Rigorous Methods for the Development of Software</i> |
| Financing Organisation | Madrid Regional Government (CAM S2009TIC-1465) |
| Participant Organisations | IMDEA Software (Spain), Technical University of Madrid (Spain), Universidad Complutense de Madrid (Spain) |
| Duration | January 2010 – December 2013 |
| Main Researcher | Prof. Francisco Bueno |

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|---------------------------|--|
| Project title | DOVES: <i>Development Of Verifiable and Efficient Software</i> |
| Financing Organisation | Spanish Ministry of Science and Innovation (TIN 2008-05624) |
| Participant Organisations | Technical University of Madrid (Spain) |
| Duration | January 2009 – December 2013 |
| Main Researcher | Prof. Manuel Hermenegildo |

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| Project title | HATS: <i>Highly Adaptable and Trustworthy Software using Formal Models</i> |
| Financing Organisation | CE ICT GA#231620 |

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|---------------------------|--|
| Participant Organisations | CTH (Sweden), UIO (Norway), KTH (Sweden), Technical University of Madrid (Spain), UKL (Germany), BOL (Italy), CWI (Holland), NRS (Norway), FRH (Germany), FRG (Holland), KUL (Belgium) |
| Duration | March 2009 – February 2013 |
| Main Researcher | Prof. Germán Puebla |
| Languages | |
| Mother tongue | Spanish |
| Proficient | English |