

Curriculum Vitae

Personal Information

Name	Rojas, José Miguel
Nationality	Bolivian
Date of birth	13 January 1984
Telephone	(+44) 7477537139
Emails	jmrs84@gmail.com, j.rojas@sheffield.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

Dates	12/2017 – present
Position	Lecturer in Model-Driven Systems Engineering for Cyber-Physical Systems
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
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

Teaching Experience

Dates	09/2017 – present
Position	Distance Learning Associate Tutor
Institution	Department of Informatics, University of Leicester, United Kingdom
Dates	01/2016 – present
Role and Course Taught	Volunteer; Coding (Children ages 8 to 11)
Institution	Code Club
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
Dates	02/2004 – 07/2004
Role and Courses Taught	Teaching Assistant; Computer Programming, Data Structures (Undergraduate Modules)
Institution	University of Aquino, Bolivia

Research Publications

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 <i>ACM Int. Symposium on Software Testing and Analysis (ISSTA)</i> , p. 57–67. ACM, 2017.
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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

SBST'19, SSBSE'18 Challenge Track, MUTATION'18, MUTATION'17 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)

Sub-reviewer
Journal Edition
Journal Reviewer

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

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

Activity
Institution
Host Researcher
Dates

Research visit
KTH Royal Institute of Technology, Stockholm, Sweden
Prof. Mads Dam
05/2011 – 07/2011

Software Projects

Name
Description
URL
Role

Code Defenders
Mutation testing game for software testing education and crowdsourcing
code-defenders.org
Lead developer

Name
Description
URL
Role

EvoSuite
Search-based unit test generation for Java
evosuite.org
Developer

Past Projects

Name
Description
URL
Role

PET
Test data generation using symbolic execution
costa.ls.fi.upm.es/pet
Developer

Research Projects

Project title GReaTest: *Growing Readable Software Tests*
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

Project title EXOGEN: *Explorative Test Oracle Generation*
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

Project title PROMETIDOS-CM: *Madrid Program in Rigorous Methods for the Development of Software*
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

Project title DOVES: *Development Of Verifiable and Efficient Software*
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

Project title HATS: *Highly Adaptable and Trustworthy Software using Formal Models*
Financing Organisation CE ICT GA#231620
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