

# Curriculum Vitae

## Personal information

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

## 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	Autonomous University of Santa Cruz, Bolivia
Qualification awarded	<i>Postgraduate Diploma in Higher Education</i>
Dates	02/2001 – 12/2005
Institution	Autonomous University of Santa Cruz, Bolivia
Degree awarded	<i>Computer Engineer</i>

## Work experience

Dates	02/2014 – present
Occupation or position held	Research Associate in Software Testing
Institution	Department of Computer Science - The University of Sheffield, United Kingdom
Dates	06/2013 – 09/2013
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 – 09/2007
Occupation or position held	.NET Developer
Institution	ABJ Consulting, Santa Cruz, Bolivia
Dates	02/2006 – 12/2006
Occupation or position held	Mathematics Laboratory Assistant
Institution	Autonomous University of Santa Cruz, Bolivia
Dates	02/2004 – 12/2005
Occupation or position held	Teaching Assistant (Principles of Informatics, Compilers)
Institution	Autonomous University of Santa Cruz, Bolivia
Dates	02/2004 – 07/2004
Occupation or position held	Teaching Assistant (Computer Programming, Data Structures)
Institution	University of Aquino in Santa Cruz, Bolivia

## Research Publications

### 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)*, 2017.  
To appear.
- 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)*, 2017.  
To appear.
- 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)*, 2017.  
To appear.
- 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)*, 2017.  
To appear.

### 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. Østfold, and José Miguel Rojas.  
JMS2ABS: Automated Extraction of Abstract Behavioural Models from JMS Applica-  
tions.  
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 Tech-  
nology (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 Simula-  
tor.  
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 Al-  
fonso 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**

**Journal Reviewer**  
**Sub-reviewer**

## Research Activities

Activity	Research visit
Institution	University of Buenos Aires, Argentina
Host Researcher	Dr. Juan Pablo Galeotti
Dates	18–22/04/2016

Activity	Research visit
Institution	Technical University of Madrid, Spain
Host Researcher	Prof. Natalia Juristo

Dates	14–18/03/2016
Activity	10th TAROT International Summer School on Training And Research On Testing
Organiser	Facultade de Engenharia, Universidade do Porto (Location: Porto, Portugal)
Dates	29/06–04/07/2014
Activity	8th LASER Summer School on Soft. Eng.: Tools for Practical Software Verification
Organiser	ETH Chair of Software Engineering (Location: Elba Island, Italy)
Dates	04–10/09/2011
Activity	Research visit
Institution	KTH Royal Institute of Technology, Stockholm, Sweden
Host Researcher	Prof. Mads Dam
Dates	05/2011 – 07/2011

## Software Projects

Name	Code Defenders
Description	Mutation testing game for software testing education and crowdsourcing
URL	<a href="http://code-defenders.org">code-defenders.org</a>
Role	Lead developer

Name	EvoSuite
Description	Search-based unit test generation for Java
URL	<a href="http://evosuite.org">evosuite.org</a>
Role	Developer

## Past Projects

Name	PET
Description	Test data generation using symbolic execution
URL	<a href="http://costa.ls.fi.upm.es/pet">costa.ls.fi.upm.es/pet</a>
Role	Developer

## Research Projects

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

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

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
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
Project title	HATS: <i>Highly Adaptable and Trustworthy Software using Formal Models</i>
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
<b>Languages</b>	
Mother tongue(s)	<b>Spanish</b>
Proficient	English