Curriculum Vitae

Personal Information

Name	**Rojas, José Miguel**
Nationalities	Bolivian, British
Email Addresses	j.rojas@sheffield.ac.uk
Homepage	https://jmrojas.github.io/
Google Scholar Profile	https://scholar.google.co.uk/citations?user=NeuqUtcAAAAJ
DBLP Profile	https://dblp.org/pid/94/5122

Qualifications

Dates	01/2018 – 08/2019
Institution	Advance HE, United Kingdom
Qualification awarded	*HEA Fellow*

Dates	10/2009 – 12/2013
Institution	Technical University of Madrid, Spain
Degree awarded	*Phd. in Software and Systems*
Thesis title	Test Case Generation in Object Oriented Programming
Supervisory Team	Prof. Elvira Albert and Dr Miguel Gómez-Zamalloa

Dates	02/2008 – 09/2009
Institution	Autonomous University of Madrid, Spain
Study	*Postgraduate Study in Computer Engineering and Telecommunications*

Dates	04/2005 – 12/2005
Institution	Gabriel René Moreno University, Bolivia
Qualification awarded	*Postgraduate Diploma in Higher Education*

Dates	02/2001 – 12/2005
Institution	Gabriel René Moreno University, Bolivia
Degree awarded	*Computer Engineer*

Work Experience

Dates	04/2022 – present
Position	Lecturer / Assistant Professor
Institution	Department of Computer Science, The University of Sheffield, United Kingdom
Roles	Programme Lead for Software Engineering (2022-2023) Academic Progression Tutor Level 2 (2024-) Lecturer of *Java Programming (Y1)* (2022-2024) and *Software Testing and Analysis (Y3)* (2023-) External Examiner at Goldsmiths, University of London (2021-2024)

Dates	12/2017 – 03/2022
Position	Lecturer / Assistant Professor
Institution	School of Informatics, University of Leicester, United Kingdom
Roles	Lecturer of *Software Architecture and Systems Development (Y2)*, *Software Measurements and Quality Assurance (Y3+MSc)*, and *Generative Development (Y3+MSc)* Year in Industry and Year Abroad Coordinator

Dates	09/2017 – 12/2017
Position	Distance Learning Associate Tutor
Institution	School 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
Principal Investigator	Prof. Gordon Fraser
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

Further Teaching

Dates	19/02/2018 – 24/02/2018
Role and Course Taught	Summer School Speaker; Automated Software Testing
Institution	University of Rio Cuarto, Argentina
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

2025

Ruizhen Gu, José Miguel Rojas, and Donghwan Shin.
Software Testing for Extended Reality Applications: A Systematic Mapping Study.
Automated Software Engineering (ASE), 32(2), 2025.

Ruizhen Gu, José Miguel Rojas, and Donghwan Shin.
Can test generation and program repair inform automated assessment of programming projects?
In *IEEE International Conference on Software Testing, Verification and Validation (ICST)*, p. 699–710. IEEE, 2025.

2024

Neil Walkinshaw, Michael Foster, José Miguel Rojas, and Robert M. Hierons.
Bounding Random Test Set Size with Computational Learning Theory.
Proc. ACM Softw. Eng., 1(FSE):2538–2560, 2024.

Muhammad Firhard Roslan, José Miguel Rojas, and Phil McMinn.
Private-Keep Out? Understanding How Developers Account for Code Visibility in Unit Testing.
In *2024 IEEE International Conference on Software Maintenance and Evolution (ICSME)*, p. 312–324, 2024.

Muhammad Firhard Roslan, José Miguel Rojas, and Phil McMinn.
Viscount: A Direct Method Call Coverage Tool for Java.
In *2024 IEEE International Conference on Software Maintenance and Evolution (ICSME)*, p. 908–912, 2024.

Yining Qiao and José Miguel Rojas.
What's in a Display Name? An Empirical Study on the Use of Display Names in Open-Source JUnit Tests.
In *Proceedings of the Third ACM/IEEE International Workshop on NL-Based Software Engineering*, NLBSE '24, p. 17–24. ACM, 2024.

2023

Ruizhen Gu and José Miguel Rojas.
An Empirical Study on the Adoption of Scripted GUI Testing for Android Apps.
In *38th IEEE/ACM International Conference on Automated Software Engineering, ASE 2023 - Workshops*, p. 179–182. IEEE, 2023.

2022

Iván Arcuschin Moreno, Juan Pablo Galeotti, Christian Ciccaroni, and José Miguel Rojas.
On the feasibility and challenges of synthesizing executable Espresso tests.
In *IEEE/ACM International Conference on Automation of Software Test, AST@ICSE 2022*, p. 92–102. ACM/IEEE, 2022.

Muhammad Firhard Roslan, José Miguel Rojas, and Phil McMinn.
An Empirical Comparison of EvoSuite and DSpot for Improving Developer-Written Test Suites with Respect to Mutation Score.
In *Search-Based Software Engineering - 14th International Symposium, SSBSE 2022*, vol. 13711 of *LNCS*, p. 19–34. Springer, 2022.

2020

Gordon Fraser, Alessio Gambi, and José Miguel Rojas.
Teaching Software Testing with the Code Defenders Testing Game: Experiences and Improvements.
In *13th IEEE International Conference on Software Testing, Verification and Validation Workshops, ICSTW 2020, Porto, Portugal, October 24-28, 2020*, p. 461–464. IEEE, 2020.

2019

Gordon Fraser, Alessio Gambi, Marvin Kreis, and José Miguel Rojas.
Gamifying a Software Testing Course with Code Defenders.
In *ACM Technical Symposium on Computer Science Education, (SIGCSE)*, p. 571–577. ACM, 2019.

Gordon Fraser and José Miguel Rojas.
Software Testing.
In Sungdeok Cha, Richard N. Taylor, and Kyo C. Kang, editors, *Handbook of Software Engineering*, p. 123–192. Springer International Publishing, 2019.

2018

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?
Software Testing, Verification and Reliability (STVR), 28(4):e1660, 2018.

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.
Facebook Testing and Verification Research Award 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.

Research Projects

Project title	Automated Generation and Inference of Unit Tests for Legacy Software
Financing Organisation	EPSRC & BT
Participant Organisations	University of Leicester, BT
Duration	09/2021 – 09/2025
Main Researcher	Dr José Miguel Rojas
Project title	Efficient Evolution for Intelligent Autonomous Systems
Financing Organisation	College of Science and Engineering, University of Leicester
Participant Organisations	University of Leicester
Duration	09/2021 – 09/2024
Main Researcher	Dr José Miguel Rojas
Project title	Trustworthy Autonomous Systems Verifiability Node
Financing Organisation	EPSRC/UKRI
Participant Organisations	U. of Leicester (Lead), U. of Leeds, U. of Manchester, U. of Sheffield, U. of York
Duration	11/2020 – 11/2022
Main Researcher	Prof. Mohammad Mousavi
Website	http://verifiability.org/

	DriverLeics
Project title	
Financing Organisation	University of Leicester, Leicester Artificial Intelligence Network
Participant Organisations	University of Leicester
Duration	01/2019 –
Main Researchers	Dr Jan Oliver Ringert and Dr José Miguel Rojas
Website	http://driverleics.github.io/
	GReaTest: *Growing Readable Software Tests*
Project title	
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
	EXOGEN: *Explorative Test Oracle Generation*
Project title	
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
	PROMETIDOS-CM: *Madrid Program in Rigorous Methods for the Development of Software*
Project title	
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
	DOVES: *Development Of Verifiable and Efficient Software*
Project title	
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
	HATS: *Highly Adaptable and Trustworthy Software using Formal Models*
Project title	
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

Academic Service

Chairing

ICST'26 Education Track Chair, ASE'25 Publicity Chair, ICSE'24 Proceedings Chair, TestEd'24 Program Chair, CLEI'24 Program Chair, TestEd'23 Program Chair, CLEI'23 Program Chair, SSBSE'23 Challenge Track Chair, SPLC'22 Demos and Tools Chair, SSBSE'22 Publicity Chair, ICSE'21 Proceedings Chair, SPLC'21 Workshops Chair EASE'21 Workshops Chair, ICSE'20 Student Volunteers Chair, SBST'20 Program Chair, SBST'19 Program Chair, SSBSE'18 Challenge Track Chair, MUTATION'18 Program Chair, MUTATION'17 Program Chair

PC Memberships	ICSE'25, SSBSE'25, AST'25, VARSE'25, FASE'25, ICSME'25 (Tool Demos), SIGCSE TS'25, ICST'25 (Education and Posters Tracks), AST'24, SSBSE'24, MUTATION'24, SBFT'24, ICST'24, ISSTA'23, ICST'23 Industry Track, MUTATION'23, AST'23, SSBSE'23, FSE'22 Student Research Competition, ICST'22 Industry Track, SSBSE'22, MUTATION'22, MUTATION'21, SBST'21, ICST'21, ESEC/FSE'20, ICST'20 (Research Track, Industry Track, Testing Tools Track), SSBSE'20, TestEd'20, MUTATION'20, SSBSE'19, ICSE'19 (Demonstrations Track), ASE'19 (Research Track, Student Research Competition), 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)
Sub-reviewing	TAP'17, iFM'13, KDPD'13, NFM'13, TACAS'13, WFLP'13, SCAM'10
Journal Edition	CLEIEJ (CLEI'24 Special Issue), CLEIEJ (CLEI'23 Special Issue), STVR (MUTATION 2016-17 Special Issue)
Journal Reviewing	Computer, IST, EMSE, JSS, SCICO, SCP, STVR, TSE, TOSEM

Research Activities

Activity	Research Visit
Institution	University of Buenos Aires, Argentina
Host Researcher	Dr. Juan Pablo Galeotti
Dates	01/08/2019 – 01/09/2019
	Research visit
Activity	
Institution	University of Buenos Aires, Argentina
Host Researcher	Dr. Juan Pablo Galeotti
Dates	18–22/04/2016
	Research visit
Activity	
Institution	Technical University of Madrid, Spain
Host Researcher	Prof. Natalia Juristo
Dates	14–18/03/2016
	10th TAROT International Summer School on Training And Research On Testing
Activity	
Organiser	Facultade de Ingenharia, Universidade do Porto (Location: Porto, Portugal)
Dates	29/06–04/07/2014
	8th LASER Summer School on Soft. Eng.: Tools for Practical Software Verification
Activity	
Organiser	ETH Chair of Software Engineering (Location: Elba Island, Italy)
Dates	04–10/09/2011
	Research visit
Activity	
Institution	KTH Royal Institute of Technology, Stockholm, Sweden
Host Researcher	Prof. Mads Dam
Dates	05/2011 – 07/2011

Software Projects

Name	Code Defenders
Description	Gamification of Software Testing
URL	code-defenders.org
Role	Lead developer
Name	EvoSuite
Description	Search-based unit test generation for Java
URL	evosuite.org
Role	Developer

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

Languages

Mother tongue	**Spanish**
Proficient	English