Curriculum Vitæ

Alessandra Gorla

Associate Research Professor

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Current Position

IMDEA Software Institute   **Madrid, Spain**
Associate Research Professor, Tenured   *June 2022–*

The main focus of my research is on the definition of new software testing and analysis techniques to make software systems reliable and trustworthy. In my research I regularly use machine learning and natural language processing techniques to solve real problems in software engineering.

Habilitations

Italian National Scientific Habilitation as Associate Professor (01/B1)   **Italy**
                                                                                      April 2017

Italian National Scientific Habilitation as Associate Professor (09/H1)   **Italy**
                                                                                      April 2017

Italian academic discipline codes 01/B1 –Informatica–, and 09/H1 –Sistemi di Elaborazione delle Informazioni– from the Italian Ministry of Education, Universities and Research (MIUR). Habilitation obtained on April 4th, 2017 according to article 16, subsection 1, of the Italian law number 240/10.

Previous Positions

IMDEA Software Institute   **Madrid, Spain**
Assistant Research Professor   *January 2015–June 2022*

Saarland University, Software Engineering Chair   **Saarbrücken, Germany**
Postdoctoral Researcher   *April 2012–November 2014*

Google inc.   **Mountain View, USA**
Visiting Researcher   *July 2014–October 2014*

Università della Svizzera Italiana   **Lugano, Switzerland**
Postdoctoral Researcher   *October 2011–March 2012*

Saarland University   **Saarbrücken, Germany**
Visiting Research Assistant   *September 2009–November 2009*

Università della Svizzera Italiana   **Lugano, Switzerland**
Research and Teaching Assistant   *October 2006–September 2011*

University of Milano-Bicocca   **Milan, Italy**
Research Assistant   *May 2006–September 2006*

Education

PhD

Università della Svizzera italiana   **Lugano, Switzerland**
PhD in Informatics   *October 2006–September 2011*
Thesis Title: Automatic Workarounds: Exploiting the Intrinsic Redundancy of Software Systems
Advisors: Prof. Mauro Pezzè, Prof. Antonio Carzaniga
ETH Fritz Kutter Award for the best industry related thesis in computer science from a swiss university in 2011.

Master Degree

University of Milano-Bicocca   **Milan, Italy**
Master Degree in Informatics, Magna cum Laude   *October 2003–April 2006*
Thesis Title: An Integration Testing Technique to Assess the Quality of Object-Oriented Software
Advisors: Prof. Mauro Pezzè, Prof. Giovanni Denaro

Bachelor Degree

University of Milano-Bicocca   **Milan, Italy**
Bachelor Degree in Informatics   *October 2000–October 2003*
Thesis Title: Data-flow Analysis for Object-Oriented Software
Advisors: Prof. Mauro Pezzè, Dr. Vincenzo Martena

Publications

In the field of software engineering, publications in top peer-reviewed conference proceedings (ICSE, ESEC-FSE, FSE, ASE and ISSTA) are at least as prestigious as journal publications. Some of my publications are highly cited in my community. [Lem+17] is the reference paper in the community working on self adaptive systems, and has over 2100 citations. [CGO15] is the reference paper for test automation in Android applications, and collected more than 450 citations in approximately 6 years. Finally, [Gor+14] is one of the most cited papers on Android analysis in the software engineering community, and with over 470 citations it is the most cited paper of the ICSE 2014 proceedings.

According to Google scholar (January, 2022), my h-index is 23 with over 4400 citations.

Refereed Journal Articles

[Bla+21a]   Arianna Blasi, Alessandra Gorla, Michael D. Ernst, Mauro Pezzè, and Antonio Carzaniga. "MeMo: Automatically identifying metamorphic relations in Javadoc comments for test automation". In: *Journal of Systems and Software* 181 (Nov. 2021).

[Bla+21b]   Arianna Blasi, Nataliia Stulova, Alessandra Gorla, and Oscar Nierstrasz. "Replicomment: identifying clones in code comments". In: *Journal of Systems and Software* 182 (Dec. 2021).

[Fea+20]   Alvaro Feal, Paolo Calciati, Narseo Vallina-Rodriguez, Carmela Troncoso, and Alessandra Gorla. "Angel or Devil? A Privacy Study of Mobile Parental Control Apps". In: *The 20th Privacy Enhancing Technologies Symposium (PoPETs 2020.2).* July 2020, 314—335.

[Car+15b]   Antonio Carzaniga, Alessandra Gorla, Nicolò Perino, and Mauro Pezzè. "Automatic Workarounds: Exploiting the Intrinsic Redundancy of Web Applications". In: *ACM Transactions on Software Engineering and Methodology* 24.3 (May 2015), 16:1–16:42.

[Gor+10]   Alessandra Gorla, Leonardo Mariani, Fabrizio Pastore, Mauro Pezzè, and Jochen Wuttke. "Achieving Cost-Effective Software Reliability Through Self-Healing". In: *Computing and Informatics* 29.1 (Jan. 2010), pp. 93–115.

[CGP08a]   Antonio Carzaniga, Alessandra Gorla, and Mauro Pezzè. "Healing Web applications through automatic workarounds". In: *Software Tools for Technology Transfer* 10.6 (Dec. 2008), pp. 493–502.

Refereed Conference Publications

[DATG22]   Daniel Domínguez-Álvarez, Daniel Tomic, and Alessandra Gorla. "ReChan: An Automated Analysis of Android App Release Notes to Report Inconsistencies". In: *MobileSoft 2019: Proceedings of the 9th IEEE/ACM International Conference on Mobile Software Engineering and Systems*. Pittsburgh, USA, May 2022, to appear.

[Faz+22]   Mattia Fazzini, Chase Choi, Juan Manuel Copia, Gabriel Lee, Yoshiki Kakehi, Alessandra Gorla, and Alessandro Orso. "Use of Test Doubles in Android Testing: An In-Depth Investigation". In: *ICSE 2022: Proceedings of the 44th International Conference on Software Engineering*. Pittsburgh, USA, May 2022, to appear.

[Cal+20]   Paolo Calciati, Konstantin Kuznetsov, Alessandra Gorla, and Andreas Zeller. "Automatically Granted Permissions in Android apps". In: *MSR 2020: 17th International Conference on Mining Software Repositories*. Seul, South Korea, May 2020, 114—124.

[FGO20]   Mattia Fazzini, Alessandra Gorla, and Alessandro Orso. "A Framework for Automated Test Mocking of Mobile Apps". In: *ASE 2020: Proceedings of the 35th IEEE/ACM International Conference on Automated Software Engineering*. Melbourne, Australia, Sept. 2020, pp. 1204–1208.

[Stu+20]   Nataliia Stulova, Arianna Blasi, Alessandra Gorla, and Oscar Nierstrasz. "Towards Detecting Inconsistent Comments in Java Source Code Automatically". In: *SCAM 2020: Proceedings of the 20th IEEE International Working Conference on Soource Code Analysis and Manipulation*. Adelaide, Australia, Sept. 2020, pp. 65–69.

[Bla+18]   Arianna Blasi, Alberto Goffi, Konstantin Kuznetsov, Alessandra Gorla, Michael D. Ernst, Mauro Pezzè, and Sergio Delgado Castellanos. "Translating Code Comments to Procedure Specifications". In: *ISSTA 2018: Proceedings of the 27th International Symposium on Software Testing and Analysis*. Amsterdam, The Netherlands, July 2018, pp. 242–253.

[BG18]   Arianna Blasi and Alessandra Gorla. "RepliComment: Identifying Clones in Code Comments". In: *ICPC 2018: Proceedings of the 26th IEEE International Conference on Program Comprehension*. Gothenburg, Sweden, May 2018, pp. 320–323.

[Cal+18]   Paolo Calciati, Konstantin Kuznetsov, Bai Xue, and Alessandra Gorla. "What did Really Change with the new Release of the App?" In: *MSR 2018: 15th International Conference on Mining Software Repositories*. Gothenburg, Sweden, May 2018, pp. 142–152.

[Kuz+18]   Konstantin Kuznetsov, Vitalii Avdiienko, Alessandra Gorla, and Andreas Zeller. "Analyzing the User Interface of Android Apps". In: *MobileSoft 2018: Proceedings of the 5th IEEE/ACM International Conference on Mobile Software Engineering and Systems*. Gothenburg, Sweden, May 2018, pp. 84–87.

[CG17]   Paolo Calciati and Alessandra Gorla. "How Do Apps Evolve in Their Permission Requests? A Preliminary Study". In: *MSR 2017: 14th International Conference on Mining Software Repositories*. Buenos Aires, Argentina: IEEE Computer Society, May 2017, pp. 37–41.

[GGZ17]   Alessio Gambi, Alessandra Gorla, and Andreas Zeller. "O!Snap: Cost-Efficient Testing in the Cloud". In: *ICST 2017: 10th International Conference on Software Testing, Verification and Validation*. Tokyo, Japan: IEEE Computer Society, Mar. 2017, pp. 454–459.

[Gof+16]   Alberto Goffi, Alessandra Gorla, Michael D. Ernst, and Mauro Pezzè. "Automatic Generation of Oracles for Exceptional Behaviors". In: *ISSTA 2016: Proceedings of the 2016 International Symposium on Software Testing and Analysis*. Saarbrücken, Germany, July 2016, pp. 213–224.

[Avd+15]   Vitalii Avdiienko, Konstantin Kuznetsov, Alessandra Gorla, Andreas Zeller, Steven Arzt, Siegfried Rasthofer, and Eric Bodden. "Mining Apps for Abnormal Usage of Sensitive Data". In: *ICSE 2015: Proceedings of the 37th International Conference on Software Engineering*. Florence, Italy: IEEE Press, May 2015, pp. 426–436.

[CGO15]   Shauvik Roy Choudhary, Alessandra Gorla, and Alessandro Orso. "Automated Test Input Generation for Android: Are We There Yet?" In: *ASE 2015: Proceedings of the 30th Annual International Conference on Automated Software Engineering*. Lincoln, NE, USA: IEEE Computer Society, Nov. 2015, pp. 429–440.

[Car+14]   Antonio Carzaniga, Alberto Goffi, Alessandra Gorla, Andrea Mattavelli, and Mauro Pezzè. "Cross-checking Oracles from Intrinsic Software Redundancy". In: *ICSE 2014: Proceedings of the 36th International Conference on Software Engineering*. Hyderabad, India, June 2014, pp. 931–942.

[Gof+14]   Alberto Goffi, Alessandra Gorla, Andrea Mattavelli, Mauro Pezzè, and Paolo Tonella. "Search-Based Synthesis of Equivalent Method Sequences". In: *FSE 2014: Proceedings of the ACM SIGSOFT 22nd Symposium on the Foundations of Software Engineering*. Hong Kong, Nov. 2014, pp. 366–376.

[Gor+14]   Alessandra Gorla, Ilaria Tavecchia, Florian Gross, and Andreas Zeller. "Checking App Behavior Against App Descriptions". In: *ICSE 2014: Proceedings of the 36th International Conference on Software Engineering*. Hyderabad, India, June 2014, pp. 1025–1035.

[Car+13]   Antonio Carzaniga, Alessandra Gorla, Andrea Mattavelli, Nicolò Perino, and Mauro Pezzè. "Automatic Recovery from Runtime Failures". In: *ICSE 2013: Proceedings of the 35th International Conference on Software Engineering*. San Francisco, CA, USA, May 2013, pp. 782–791.

[Viv+13]   Mattia Vivanti, Andre Mis, Alessandra Gorla, and Gordon Fraser. "Search-based data-flow test generation". In: *ISSRE 2013: 24th International Symposium on Software Reliability Engineering*. Pasadena, CA, USA, Nov. 2013, pp. 370–379.

[Wut+12]   Jochen Wuttke, Yuriy Brun, Alessandra Gorla, and Jonathan Ramaswamy. "Traffic Routing for Evaluating Self-Adaptation". In: *SEAMS 2012: Proceedings of the 7th International Symposium on Software Engineering for Adaptive and Self-Managing Systems*. Zurich, Switzerland: ACM, June 2012, pp. 27–32.

[Car+10a] Antonio Carzaniga, Alessandra Gorla, Nicolò Perino, and Mauro Pezzè. "Automatic Workarounds for Web Applications". In: *FSE 2010: Proceedings of the ACM SIGSOFT 18th Symposium on the Foundations of Software Engineering*. Santa Fe, NM, USA, Nov. 2010, pp. 237–246.

[DGP08]   Giovanni Denaro, Alessandra Gorla, and Mauro Pezzè. "Contextual Integration Testing of Classes". In: *FASE 2008: Fundamental Approaches to Software Engineering*. Budapest, Hungary, Mar. 2008, pp. 246–260.

Refereed Workshop Publications

[Gar+21b] Juan Francisco García, Daniel Jurjo, Fernando Macías, José Francisco Morales, and Alessandra Gorla. "An application of KLEE to aerospace industrial software". In: *2nd International KLEE Workshop on Symbolic Execution*. 2021.

[DAG19]   Daniel Domínguez-Álvarez and Alessandra Gorla. "Release Practices for iOS and Android Apps". In: *WAMA 2019: Proceedings of the 4nd International Workshop on App Market Analytics*. 2019, pp. 15–18.

[Avd+16]   Vitalii Avdiienko, Konstantin Kuznetsov, Paolo Calciati, Juan Carlos Caiza Román, Alessandra Gorla, and Andreas Zeller. "CALAPPA: a Toolchain for Mining Android Applications". In: *WAMA 2016: Proceedings of the 1st International Workshop on App Market Analytics*. Seattle, WA, USA: ACM, Nov. 2016, pp. 22–25.

[Kuz+16]   Konstantin Kuznetsov, Vitalii Avdiienko, Alessandra Gorla, and Andreas Zeller. "Checking App User Interfaces Against App Descriptions". In: *WAMA 2016: Proceedings of the 1st International Workshop on App Market Analytics*. Seattle, WA, USA: ACM, Nov. 2016, pp. 1–7.

[TGZ14]   Julian Thomé, Alessandra Gorla, and Andreas Zeller. "Search-based Security Testing of Web Applications". In: *SBST 2014: Proceedings of the 7th International Workshop on Search-Based Software Testing*. Hyderabad, India, May 2014, pp. 5–14.

[CGP08b] Antonio Carzaniga, Alessandra Gorla, and Mauro Pezzè. "Self-Healing by Means of Automatic Workarounds". In: *SEAMS 2008: Proceedings of the 2008 International Workshop on Software Engineering for Adaptive and Self-Managing Systems*. Leipzig, Germany: ACM, May 2008, pp. 17–24.

[Gor07]   Alessandra Gorla. "Towards Design for Self-Healing". In: *SOQUA 2007: Proceedings of the 4th International Workshop on Software Quality Assurance*. Dubrovnik, Croatia: ACM, Sept. 2007, pp. 86–89.

Refereed Book Chapters

[Gof+17]   Alberto Goffi, Alessandra Gorla, Andrea Mattavelli, and Mauro Pezzè. "Intrinsic Redundancy for Reliability and Beyond". In: *PAUSE: Present and Ulterior Software Engineering*. Ed. by Bertrand Meyer and Manuel Mazzara. Springer, Sept. 2017, pp. 153–171.

[Lem+17]   Rogério de Lemos, David Garlan, Carlo Ghezzi, Holger Giese, Jesper Andersson, Marin Litoiu, Bradley Schmerl, Danny Weyns, Luciano Baresi, Nelly Bencomo, Yuriy Brun, Javier Camara, Radu Calinescu, Myra B. Cohen, Alessandra Gorla, Vincenzo Grassi, Lars Grunske, Paola Inverardi, Jean-Marc Jezequel, Sam Malek, Raffaela Mirandola, Marco Mori, Hausi A Müller, Romain Rouvoy, Cecilia MF Rubira, Eric Rutten, Mary Shaw, Giordano Tamburrelli, Gabriel Tamura, Norha M Villegas, Thomas Vogel, and Franco Zambonelli. "Software engineering for self-adaptive systems: research challenges in the provision of assurances". In: *Software Engineering for Self-Adaptive Systems III. Assurances*. Vol. 9640. Springer-Verlag, Jan. 2017, pp. 3–30.

[Kuz+15]   Konstantin Kuznetsov, Alessandra Gorla, Ilaria Tavecchia, Florian Gross, and Andreas Zeller. "Mining Android Apps for Anomalies". In: *The Art and Science of Analyzing Software Data*. Morgan Kaufmann, Apr. 2015, pp. 257–281.

[And+13]   Jesper Andersson, Luciano Baresi, Nelly Bencomo, Rogério de Lemos, Alessandra Gorla, Paola Inverardi, and Thomas Vogel. "Software Engineering Processes for Self-adaptive Systems". In: *Software Engineering for Self-Adaptive Systems II*. Vol. 7475. Springer-Verlag, Jan. 2013, pp. 51–75.

[Lem+13]   Rogério de Lemos, Holger Giese, Hausi A. Müller, Mary Shaw, Jesper Andersson, Luciano Baresi, Basil Becker, Nelly Bencomo, Yuriy Brun, Bojan Cukic, Ron Desmarais, Schahram Dustdar, Gregor Engels, Kurt Geihs, Karl M. Goeschka, Alessandra Gorla, Vincenzo Grassi, Paola Inverardi, Gabor Karsai, Jeff Kramer, Marin Litoiu, Antonia Lopes, Jeff Magee, Sam Malek, Serge Mankovskii, Raffaela Mirandola, John Mylopoulos, Oscar Nierstrasz, Mauro Pezzè, Christian Prehofer, Wilhelm Schäfer, Rick Schlichting, Bradley Schmerl, Dennis B. Smith, Joao P. Sousa, Gabriel Tamura, Ladan Tahvildari, Norha M. Villegas, Thomas Vogel, Danny Weyns, Kenny Wong, and Jochen Wuttke. "Software Engineering for Self-Adaptive Systems: A Second Research Roadmap". In: *Software Engineering for Self-Adaptive Systems II*. Vol. 7475. Springer-Verlag, Jan. 2013, pp. 1–32.

[CGP09]   Antonio Carzaniga, Alessandra Gorla, and Mauro Pezzè. "Handling Software Faults with Redundancy". In: *Architecting Dependable Systems VI*. Ed. by R. de Lemos, J.-C. Fabre, C. Gacek, F. Gadducci, and M. H. ter Beek. Lecture Notes in Computer Science. Springer, Oct. 2009, pp. 148–171.

Refereed Short Publications

[Gar+21a] Juan Francisco García, Daniel Jurjo, Fernando Macías, José Francisco Morales, and Alessandra Gorla. "An application of KLEE to aerospace industrial software". In: *XX Jornadas de Programación y Lenguajes (PROLE 2021)*. 2021.

[DA+19]   Daniel Domínguez-Álvarez, Alessandra Gorla, Juan Caballero, and Roberto Giacobazzi. "Are you Sure They are the Same? Identifying Differences Between iOS and Android Implementations". In: *Actas de las V Jornadas Nacionales de Ciberseguridad*. 2019, pp. 332–333.

[Fea+18]   Alvaro Feal, Julien Gamba, Narseo Vallina-Rodriguez, Carmela Troncoso, Alessandra Gorla, and Paolo Calciati. "A Study on the Privacy Implications of Mobile Parental Control Apps". In: *Open Day for Privacy, Transparency and Decentralization (OPERANDI 2018), in conjunction with the 18th Privacy Enhancing Technologies Symposium (PETS 2018)*. July 2018.

[Avd+17]   Vitalii Avdiienko, Konstantin Kuznetsov, Isabelle Rommelfanger, Andreas Rau, Alessandra Gorla, and Andreas Zeller. "Detecting Behavior Anomalies in Graphical User Interfaces". In: *ICSE 2017: Proceedings of the 39th International Conference on Software Engineering Companion*. Buenos Aires, Argentina, May 2017, pp. 201–203.

[Car+15a]   Antonio Carzaniga, Alberto Goffi, Alessandra Gorla, Andrea Mattavelli, Nicolò Perino, Mauro Pezzè, and Paolo Tonella. "Intrinsic Software Redundancy for Self-healing Software Systems and Automated Oracle Generation". In: *Software Engineering & Management 2015*. GI, May 2015, pp. 129–130.

[MGG15]   Andrea Mattavelli, Alberto Goffi, and Alessandra Gorla. "Synthesis of Equivalent Method Calls in Guava". In: *SSBSE 2015: Proceedings of the 7th International Symposium on Search-Based Software Engineering*. Bergamo, Italy: Springer, Sept. 2015, pp. 248–254.

[Car+12]   Antonio Carzaniga, Alessandra Gorla, Andrea Mattavelli, and Nicolò Perino. "A self-healing technique for Java applications". In: *ICSE 2017: Proceedings of the 34th International Conference on Software Engineering Companion*. Zürich, Switzerland: IEEE, June 2012, pp. 1445–1446.

[Car+10b]   Antonio Carzaniga, Alessandra Gorla, Nicolò Perino, and Mauro Pezzè. "RAW: runtime automatic workarounds". In: *ICSE 2010: Proceedings of the 32nd International Conference on Software Engineering Companion*. Cape Town, South Africa, May 2010, pp. 321–322.

[DGP09]   Giovanni Denaro, Alessandra Gorla, and Mauro Pezzè. "DaTeC: Dataflow Testing of Java Classes". In: *ICSE 2009: Proceedings of the 31st International Conference on Software Engineering Companion*. Vancouver, BC, Canada: ACM, May 2009, pp. 421–422.

[Gor08]   Alessandra Gorla. "Automatic Workarounds as Failure Recoveries". In: *FSEDS 2008: Proceedings of the ACM SIGSOFT 16th Symposium on the Foundations of Software Engineering Doctoral Symposium*. Atlanta, GA, USA: ACM, Nov. 2008, pp. 9–12.

Public Talks

- *"Finding Mentors and Building Networks"*, invited speaker at PL Mentoring Workshop (PLMW), co-located with SPLASH, 22 October 2019, Athens, Greece.

- *"Inferring procedure specifications from Javadoc comments for automated testing"*, invited lecture at UCM, Madrid, April 2019.

- *"Inferring procedure specifications for automated testing"*, invited speaker at the CHOOSE forum 2017 on Software and Data Engineering. 17 November 2017, Zurich, Switzerland.

- *"Mining the Google Play for Anomalies"*, Keynote speaker at the 2017 WAMA workshop. September 05 2017, Paderborn, Germany.

- *"Mining Android Apps for Anomalous Behavior"*, invited talk at University of Washington. 18 November 2016, Seattle, USA.

- *"Abnormal Sensitive Data Usage in Android Apps"*, Segunda Edición de las Jornadas Nacionales de Investigación en Ciberseguridad. 17 July 2016, Granada, Spain.

- *"Automatic Generation of Oracles for Exceptional Behaviors"*, invited talk, University of Luxembourg. April 26, 2016.

- *"Towards using Android testing tools to assess trustworthiness of apps"*, Keynote speaker at the 2015 TESTBEDS workshop. November 10 2015, Lincoln, Nebraska USA.

- *"Advances and current challenges in mining anomalies"*, Keynote speaker at Workshop in Recent Advances in Secure Software Engineering. September 28 2015, Alghero, Sardinia.

- *"Mining behavior of Android apps: Can test input generation tools help?"*, Shonan meeting on Mobile App Store Analytics. October 19 2015, Shonan Japan.

- *"CHABADA: Checking app behavior against app descriptions"*, 36th CREST Open Workshop, University College London. November 18, 2014.

- *"Checking App Behavior Against App Descriptions"*, invited talk, University of Uruguay. August 4, 2014.

- *"Mining Android Applications for Anomalies"*, Dagstuhl Seminar n. 14261 on Software Development Analytics, July 2014.

- *"Checking App Behavior Against App Descriptions"*, 2014 European Open Symposium on Empirical Software Engineering. June 30, 2014.

- *"Checking App Behavior Against App Descriptions"*, ICSE conference, research track. June 6, 2014.

- *"Search-Based Security Testing of Web Applications"*, SBST workshop. June 2, 2014.

- *"Checking App Behavior Against App Descriptions"*, invited talk, University of Luxembourg. May 28, 2014.

- *"Automatic Recovery from Runtime Failures, and Beyond"*, 29th CREST Open Workshop, University College London. November 18, 2013.

- *"Automatic Recovery from Runtime Failures"*, ICSE conference, research track. May 24, 2013.

- *"Automatic Recovery from Runtime Failures"*, Dagstuhl Seminar n. 13061 on Fault Prediction, Localization, and Repair. February 4, 2013.

- *"Automatic Workarounds: Exploiting the Intrinsic Redundancy of Software Systems"*, University of Bern. March 20, 2012.

- *"Automatic Workarounds: Exploiting the Intrinsic Redundancy of Software Systems"*, Saarland University. November 7, 2011.

- *"Automatic Workarounds for Web Applications"*, Dagstuhl Seminar n. 11062 on Self-repairing Programs. February 10, 2011.

- *"Automatic Workarounds for Web Applications"*, FSE conference, research track. November 11, 2010.

- *"Automatic Workarounds for Web Applications"*, Dagstuhl Seminar n. 10431 on Software Engineering for Self-Adaptive Systems. October 27, 2010.

- *"Automatic Workarounds for Web Applications"*, Google Testing Automation Conference. October 21, 2009.

- *"Automatic Workarounds as Failure Recoveries"*, FSE Doctoral Symposium. November 11, 2008.

- *"Self-Healing by Means of Automatic Workarounds"*, SEAMS workshop. May 12, 2008.

- *"Contextual Integration Testing of Classes"*, FASE conference. April 1, 2008.

- *"Towards Design for Self-Healing"*, SoQUA workshop. September 4, 2007.

Research Prototypes

Androtest

Androtest is a platform to evaluate testing tools for Android apps in terms of code coverage and number of identified failures [CGO15]. Androtest is highly used and cited (over 450 citations in 6 years), and it is the reference work for testing mobile apps. The first release of the platform is available at http://bear.cc.gatech.edu/~shauvik/androtest/, but two interns working under my supervision at IMDEA software produced a new release based on Docker, making the infrastructure much easier to use and extend. The new prototype can be found at https://github.com/imdea-software/androtest-on-docker.

Toradocu

Toradocu is a tool that analyzes the Javadoc comments in one or more Java classes to extract preconditions of method parameters, and normal and/or exceptional postconditions of methods [Gof+16; Bla+18]. We extended Toradocu in a new tool, called MeMo, to automatically identify metamorphic relations in Javadoc comments [Bla+21a]. Such specifications, which are produced as executable Java code, can be used together with test case generators such as Randoop https://github.com/randoop/randoop to generate unit test cases for Java classes with valid test oracles. The prototype is open source and available at https://github.com/ariannab/toradocu.

Appmining

Appmining is a tool-chain that includes different static analyses for Android apps. It works on different artifacts such as the application description, the manifest of the app and the bytecode [Avd+16]. Each analysis is implemented as a standalone module on top of Luigi, a pipeline framework written in Python that allows to declare dependencies across different tasks. We use our framework to run several empirical studies on the behavior evolution of Android apps [Cal+18; Cal+18; Cal+20; Fea+20]. The Python prototype is open source at https://github.com/gorla/appmining

RepliComment

RepliComment is a tool to analyze Java projects and look for clones in Javadoc comments [BG18; Bla+21b]. It reports comments that are likely to be copy-and-paste errors, such that developers can revise and fix them if necessary. It also reports clones that are not bugs, but may highlight comments that should be improved. The tool is open source at https://github.com/ariannab/replicomment.

Smapper – Chabada

Smapper is a completely new implementation of the Chabada technique [Gor+14] built on top of the Luigi pipeline framework https://github.com/spotify/luigi. It detects anomalous Android applications based on the natural language description reported on the Google Play store and the Android framework APIs used by the app. This implementation has been used for the Smapper project and has been deployed in the Telecom Italia infrastructure for their TIM app store. The implementation is open source and available at https://bitbucket.org/gorla/smapper-imdea-anomalydetection.

UpDoc

UpDoc is a prototype to analyze Java projects and report Javadoc comments that are not consistent with their method implementation[Stu+20] The project is available at https://gitlab.software.imdea.org/doc-code-analysis/updoc/updoc.

DBLP-retriever

DBLP-retriever is a python tool to crawl DBLP web pages to retrieve the full list of papers in conference proceedings and journal issues. Each paper entry contains the list of authors, the paper title, the DOI link and the full abstract text, among other information. Thanks to this tool we could crawl almost 1,000 proceedings and journal issues to have a systematic literature review on code comments [**Rani:SLRCodeComments:JSS:2022**]. The tool is available at https://gitlab.software.imdea.org/alessandra.gorla/dblp-retriever, while the dataset of 1,000 venues and journals is available at https://gitlab.software.imdea.org/alessandra.gorla/dblp-crawling-data

DaTeC

This project is the open source implementation of the technique described in [DGP08]. It statically analyzes Java projects to identify data-flow interactions among different classes such that they can be thoroughly tested. The implementation if publicly available at https://github.com/gorla/DaTeC.

Research Grants

- Ramón y Cajal fellowship, IMDEA Software Institute, 2022–2026. Total budget: 325K.

  Top personal national research grant given by the Spanish Ministry of Economy and Competitiveness to fund research groups for 5 years.

- Facebook Test and Verification Award, IMDEA Software Institute, Nov. 2019

  Co-PI together with Mattia Fazzini (University of Minnesota) and Alessandro Orso (Georgia Institute of Technology). Total budget: 50K.

  The project aims to improve test automation for mobile apps thanks to the automatic generation of mock objects. The major advantage of generating and using mocks is to make test executions deterministic, mitigating the effect of test flakiness.

- Regional project Madrid Flight on Chip (MFoC), IMDEA Software Institute, Jan. 2018–Dec. 2020

  PI. Total budget: 6M (227,000 for IMDEA).

  The project aims to improve the development process of software for aerospace systems. The contribution of IMDEA is to provide techniques to automate the testing tasks as much as possible.

- Regional project BLOQUES-CM, IMDEA Software Institute, Jan. 2018–Dec. 2020

  Research Investigator of the project. Total budget: 763,000 EUR.

  The project aims to address major challenges of systems based on blockchains and smart contracts.

- Regional project RiskIoT, IMDEA Software Institute, Feb. 2017–Dec. 2018

  Subawardee. Total budget: 195,000 (subcontract of 20,000 for IMDEA).

  The project aims to develop an anomaly detection pipeline of IoT network traffic. The project is in collaboration with NEXTEL S.A. an engineering company that develops infrastructures for cybersecurity.

- EIT Digital project antifraud, IMDEA Software Institute, Jan. 2017–Dec. 2017

  Research Investigator of the project. Total budget: 493,000 EUR (115,000 for IMDEA)

  The project, led by Reply Italia and in collaboration with Fondazione Bruno Kessler in Trento, aimed to identify unauthorized accesses in banking applications by means of a novel technology that detects unusual keystroke patterns.

- EIT Digital project SMAPPER, IMDEA Software Institute, Jan. 2016–Dec. 2016

  Coordinator of the project. Total budget: 400,000 EUR (135,000 for IMDEA)

  The consortium of this project, which was formed by the IMDEA Software Institute, Saarland University, F-Secure and Telecom Italia Information Technology, aimed to create a novel technology to let non-expert users understand and control permissions of applications on their own mobile devices.

- Spanish national project DEDETIS, IMDEA Software Institute, Jan. 2016–Dec. 2018

  Research Investigator of the project. Total budget: 97,284 EUR

  The project aims to design and implement techniques to detect and defend against security and privacy threats to the information society.

Participation in Funded Research Projects

- ERC project SPECMATE, Saarland University, 2012–Dec. 2014

  This project aims to extract specifications from software systems by means of automated test generation.

- SNF project *WASH: WorkArounds for Self-Healing*, Università della Svizzera italiana, 2009–2011

  In this project we investigated a general approach for failure recovery based on automatic workarounds. We observed that software systems of significant complexity are often redundant, in the sense that the same functionality can be obtained through multiple sequences of operations. By exploiting this redundancy, we could built effective workarounds capable of recovering from some functional failures.

- SNF project *PerSeoS: Pervasive Self-Adaptive Software Systems*, Università della Svizzera italiana, 2007–2009

  This project targeted complex software systems, i.e., systems composed of many heterogeneous devices, which communicate to each other through distributed and wireless interfaces, and tackled the problem of coordinating heterogeneous self-adaptive mechanisms to solve conflicts and avoid chaos.

Teaching Experience

Lecturer

- *Computer Security* (master course), Schaffausen Institute of Technology, Switzerland, Winter Semester 2021-2022.

- *Static and Dynamic Analysis of Android apps* (master course), University of Passau, guest lecture, 2021.

- *Test Oracles* (master course), University of Zurich, guest lecture, 2021.

- *Computer Security, module on Software Security* (master course), Universidad Politécnica de Madrid, Spain, Winter Semester 2021.

- *Computer Security* (master course), Schaffausen Institute of Technology, Switzerland, Winter Semester 2020-2021.

- *Computer Security, module on Software Security* (master course), Universidad Politécnica de Madrid, Spain, Winter Semester 2020.

- *Computer Security, module on Software Security* (master course), Universidad Politécnica de Madrid, Spain, Winter Semester 2019.

- *Computer Security, module on Software Security* (master course), Universidad Politécnica de Madrid, Spain, Winter Semester 2018.

- *Understanding the Behavior of Android apps by Means of Static and Dynamic Analyses*, Summer School on Software Engineering hosted at the Free University of Bozen-Bolzano, July 2018.

- *Computer Security, module on Software Security* (master course), Universidad Politécnica de Madrid, Spain, Winter Semester 2017.

- *Computer Security, module on Software Security* (master course), Universidad Politécnica de Madrid, Spain, Winter Semester 2016.

- *App Mining: Tools and Techniques for the Big Data Analytics of Android apps*, ISSTA Summer School, Saarbrücken, Germany, 18-19 July 2016.

- *Challenges and Opportunities in Mobile Testing*, 11th International Summer School on Training And Research On Testing, Cádiz, Spain, 29th June - 2nd July 2015.

- *Static and Dynamic Analysis Techniques for Mobile Security*, ECI Winter School, University of Buenos Aires, Argentina, 28th July - 2nd August 2014.

- *Software Engineering* (guest lectures in Prof. Andreas Zeller's course), Saarland University, Winter 2013/2014.

- *Mobile Testing and Analysis* (seminar course, with Prof. Andreas Zeller), Saarland University, Summer 2013. Ranked as the *best seminar course of the semester.*

- *Automated Testing and Verification* (advanced course, with Dr. Juan Pablo Galeotti), Saarland University, Winter 2012/2013.

- *Self-healing Systems* (seminar course, with Prof. Andreas Zeller), Saarland University, Summer 2012.

- *iPhone Programming* (special course to undergraduates), Università della Svizzera italiana, Summer 2009.

Teaching Assistant

- *Software Quality + LAB* (Master course), Università della Svizzera italiana, Spring 2010.
  Instructor: Prof. Mauro Pezzè, Prof. Carlo Ghezzi.

- *Software Quality + LAB* (Master course), Università della Svizzera italiana, Spring 2009.
  Instructor: Prof. Mauro Pezzè.

- *Software Atelier I* (Bachelor course), Università della Svizzera italiana, Fall 2008.
  Instructor: Prof. Mauro Pezzè.

- *Software Quality + LAB* (Master course), Università della Svizzera italiana, Spring 2008.
  Instructors: Prof. Mauro Pezzè, Prof. Michal Young.

- *Software Design* (Bachelor course), Università della Svizzera italiana, Spring 2007.
  Instructor: Prof. Walter Binder.

- *Software Atelier II* (Bachelor course), Università della Svizzera italiana, Spring 2007.
  Instructor: Prof. Alex Repenning.

- *Technology Lab III: Testing* (Bachelor course), Università della Svizzera italiana, Fall 2006.
  Instructor: Prof. Mauro Pezzè.

Research Group and Supervised Students

My research group currently includes 1 postdoc (Fernando Macias), 2 PhD students (Daniel Dominguez and Juan Manuel Copia) and 1 master student (Juan Francisco Garcia) at IMDEA.

The usual size of research groups for assistant professors at IMDEA spans between 1 and 2 PhD students.

Postdocs

- Fenando Macias, IMDEA Software Institute, Spain. Since September 2019.

  Fernando joined IMDEA to collaborate on the MFoC project. The goal of MFoC is to bring automation to the test generation, execution and selection of SANER, our industrial partner working on satellite software development [**Macias:KleeMFOC:PROLE:2021**],[Gar+21b]. His background on model-based software engineering complements with mine in testing and analysis to make this project feasible.

PhD Students

- Paolo Calciati, IMDEA Software Institute and Universidad Politécnica de Madrid (UPM), Spain. Started in November 2015 and defended in November 2019 (Sobresaliente, cum laude).

  Paolo's PhD topic was on how Android apps evolve in their behavior across different releases, and aimed to highlight privacy threats for the final user. He published his contribution of a tool-chain to analyze Android apps in [Avd+16], a preliminary evaluation of how permission requests evolve in Android apps [CG17], and a more thorough analysis of how the behavior changes across different app releases [Cal+18]. More recently he evaluated how automatically granted permissions in the new Android permission model may pose a risk for final users [Cal+20].

- Arianna Blasi, Università della Svizzera italiana (USI), Switzerland. Started in March 2018 and defended in April 2022 (co-advised with Prof. Mauro Pezzè). Currently employed as software engineer at Facebook in London.

  Arianna's PhD is on the use of natural language processing techniques to improve the quality of source code. Her first contribution in this direction is a technique to analyze the Javadoc comments of Java classes to automatically infer test oracles for automatic test case generation tools [Bla+18; Bla+21a]. Her second contribution in this direction is a technique to identify clones in Javadoc comments that may be the result of bad copy and paste practice [BG18; Bla+21b].

- Daniel Dominguez Alvarez, IMDEA Software Institute and Università di Verona, Italy, since January 2019 (co-advised with Prof. Roberto Giacobazzi). Expected to defend in January 2023.

  The focus of his research is on the development of novel techniques to analyze iOS applications to correctly identify third-party components. Daniel invested two years of his PhD to develop the infrastructure to analyze iOS apps, and he is preparing a paper for his first submission to a top tier venue in software engineering or security.

- Juan Manuel Copia, IMDEA Software Institute and Universidad Politécnica de Madrid (UPM), since January 2020.

  In his first year of PhD studies Juan Manuel joined the efforts to study how developers use test doubles for Android apps [Faz+22]. The focus of his research for the rest of his PhD will be on software testing automation, but he plans to work on the development of novel techniques to improve symbolic execution engines.

Master Students

- Juan Francisco Garcia, intern at IMDEA Software since 2021.

  Juan Francisco is working on the MFoC project, and specifically he has been adapting the KLEE symbolic execution engine to automatically test C code generated from Simulink models [**Macias:KleeMFOC:PROLE:2021**; Gar+21b].

- Nicola Amadio, "Extending the Freud System Performance Analysis framework for Java bytecode", Università degli Studi di Milano (UniMi), Italy, February 2022.

  Nicola spent 6 months in Madrid between 2020 and 2021 working under my supervision in collaboration with Prof. Antonio Carzaniga to extend Freud https://github.com/usi-systems/freud, an existing framework to analyze system performance with probabilistic performance annotations for C and C++ systems. Nicola extended Freud to make it able to analyze Java bytecode.

- Ankita Israel Sadu, "Automatic Detection of Outdated Comments in Open-Source Java Projects", Universidad Politécnica de Madrid (UPM), Spain, July 2019.

  Ankita's works defines a novel technique to map elements in code comments to statements in the code AST. This mapping can be used to keep code and comments aligned across releases, and thus report outdated comments automatically.

- Harry Carpio Salvatierra "A Proposal of Automatic Quality Evaluator for GIT Commit Messages", Universidad Politécnica de Madrid (UPM), Spain, July 2019.

  Harry's work uses simple NLP techniques to evaluate the quality of commit messages. His evaluation shows that the vast majority of projects do not follow the best practices when writing commit messages.

- Daniel Toniuc, "An Automated Analysis of the "What's New" Descriptions of Android Apps", Universidad Politécnica de Madrid (UPM), Spain, June 2019.

  Daniel's thesis developed a novel NLP technique to analyze release notes of Android apps to classify them according to a novel taxonomy. We recently extended this work with a static analysis of the code to identify when changes in the code do not match changes described in the release note. This work is currently under submission.

- Daniel Dominguez Alvarez, "Checking Android Applications Behavior Against Google Play Descriptions at Scale", Universidad Politécnica de Madrid (UPM), Spain, January 2019.

  Daniel's master thesis aims to extend the technique published in [Gor+14] to the large dataset of Tacyt, provided by Telefonica. While the original paper showed the feasibility of the technique on a dataset of 30K apps, Daniel's implementation scales to almost 1M apps, and includes novel evaluation metrics.

- Arianna Blasi, "Using Semantic Similarity Analysis of Javadoc Comments to Automatically Generate Test Oracles", University of Milano-Bicocca, Italy. October 2017.

  Arianna visited the IMDEA Software institute for a year during her master studies. During her internship she worked on an extension of Toradocu [Gof+16], a technique that analyzes Javadoc comments to automatically infer test oracles for automatic test case generators. Her extension includes a *semantic analysis* of the comments in natural language, and an extension of Randoop, i.e. one of the state of the art tools to automatically generate unit tests for Java code. We published the results of her master thesis in [Bla+18]. During her stay at IMDEA, Arianna also used her gained experience on natural language processing to automatically identify Javadoc comment clones, which are often the result of copy and paste errors. We published the results of this work in [BG18].

- Alvaro Feal Fajardo, "Study on Privacy of Parental Control Mobile Applications", Universidad Politécnica de Madrid (UPM), Spain, July 2017, Co-advised with Carmela Troncoso and Juan Caballero.

  Alvaro's master thesis is an empirical study on the privacy implications of parental control mobile apps. We published a short version of his work in [Fea+18], and further extended his work in [Fea+20].

- Tahir Javaid, "Testing of Android Testing Tools: Development of a Benchmark for the Evaluation", Universidad Politécnica de Madrid (UPM), Spain, July 2015.

  In his master thesis, Tahir developed a set of Android apps to enrich the benchmark we used in [CGO15]. We never managed to integrate his work in the main repository of the project though, and never managed to use it for evaluation.

- Elias Hartz, *"History-Guided Generation of Tests with Maximum Impact"*, Saarland University, Germany, January 2015.

- Daniel Muth, *"POLYGRAPPH: Heuristic Permission Management for Android "*, Saarland University, Germany, October 2014.

- Dimas Kurniawan and Souza Nurafrianto Windiartono Putra, *"Bugstudio: An Android Bug Reporting Tool for Reproducing Field Failures"*, Saarland University, Germany, August 2014.

- Marie-Therese Walter, *"Semantic Detection of Drive-by Attacks in a Browser"*, Saarland University, Germany. April 2014.

- Julian Thomé, *"BioFuzz: Bio-Inspired Fuzz Testing for Finding Security Vulnerabilities in Web Applications"*, Saarland University, Germany. December 2013.

- Ezio Bellingeri, *"A Transactional Recovery Technique for Java Applications"*, University of Milano-Bicocca, Italy. April 2012.

- Alberto Goffi, *"Semi-automatic Inference of Equivalent Sequences"*, University of Milano-Bicocca, Italy. February 2012.

- Giuseppe Falco, *"Automatic Generation of Workarounds"*, University of Milano-Bicocca, Italy. July 2010.

- Fabrizio Faustinoni, *"Empirical Evaluation of a Self-healing Technique"*, University of Milano-Bicocca, Italy. July 2010.

- Marco Massarelli, *"A Data-flow Technique for Integration Testing of Object Oriented Applications"*, University of Milano-Bicocca, Italy. April 2010.

- Nicolò Perino, *"Automatic Workarounds for Self-healing Web applications"*, University of Milano-Bicocca, Italy. July 2009.

Bachelor Students

- Guillermo Paredes, *"Automatically fixing test cases for evolving Android apps"*, Universidad Politécnica de Madrid (UPM), Spain, 2019.

  New releases of a mobile app may involve changes in the User Interface. Such changes can break test cases that were developed with Appium and similar frameworks, and developers may need a lot of time to manually fix broken tests. Guillermo's thesis aims to automatically fix manually generated UI test cases for future releases of mobile apps.

- José Carlos Garde Gonzalez, *"Evaluation of Androtest with a synthetic benchmark"*, Universidad Politécnica de Madrid (UPM), Spain, 2019.

  José Carlos's work aims to extend the master thesis of Tahid with new Android apps for the Androtest benchmark, and run additional evaluation experiments to compare the performance of existing Android testing tools.

- Sergio Delgado Castellanos, *"ToraDocu – Generación Automática de Casos de Test con Oráculos"*, Universidad Politécnica de Madrid (UPM), Spain, June 2017.

  Sergio collaborated with Arianna on the extension of Toradocu [Gof+16] in order to extract pre and post-conditions from Javadoc comments. Because of his contribution he is an author of the resulting publication [Bla+18].

- Sergio Valverde Garcia, *"Automatic Testing Platform for Android Apps"*, Universidad Politécnica de Madrid (UPM), Spain, June 2017.

  For his bachelor thesis Sergio completely redesigned and re-implemented the Androtest platform [CGO15] using the docker technology.

- Miguel Pozo Ruiz *"Study of Privacy in Social Network Plug-Ins"*, Universidad Politécnica de Madrid (UPM), Spain, January 2017, Co-advised with Carmela Troncoso.

  Miguel developed a technique to identify click-jacking attacks in Twitter posts.

- Jianan Ma, *"Predicting Code Quality Using Versatility of a Method"*, Saarland University, Germany. March 2015.

- Michael Backenköhler, *"Dataflow Testing in Evosuite"*, Saarland University, Germany. January 2014.

- Lukas Subel, *"jMutOps: Matching Code Changes–Mutation Operators."*, Saarland University, Germany. December 2013.

- Renzo Russi, *"Data-flow Analysis for Testing Object Oriented Software."*, Università della Svizzera italiana, Switzerland. June 2008.

- Andreia David, *"Generating Automatic Workarounds from Finite-State Models"*, Università della Svizzera italiana, Switzerland. June 2009.

- Matteo Re Cecconi, *"DaTeC: Data-flow Testing of Java Classes"*, Università della Svizzera italiana, Switzerland. June 2009.

Academic Service

Organizing Committees

- Artifact Evaluation co-chair, European Conference on Object Oriented Programming (ECOOP) 2022.

- General co-chair, IEEE International Conference on Software Testing, Verification and Validation (ICST) 2022.

- Program co-chair for Industrial Track, International Conference on Software Maintenance and Evolution (ICSME) 2021.

- General chair, Mobile Software Engineering and Systems (MOBILESoft) 2021.

- Proceedings co-chair, ACM/IEEE International Conference on Software Engineering (ICSE) 2021.

- Tool Demonstrations co-chair, ACM International Symposium on Software Testing and Analysis (ISSTA) 2019.

- Tool Demonstrations co-chair, IEEE International Conference on Software Testing, Verification and Validation (ICST) 2019.

- Program co-chair, 11th International Workshop on Search-Based Software Testing (SBST) 2019.

- Program co-chair, 10th International Workshop on Search-Based Software Testing (SBST) 2018.

- Artifact Evaluation co-chair, International Conference on Software Maintenance and Evolution (ICSME) 2017.

- Artifact Evaluation co-chair, International Symposium on Engineering Secure Software and Systems (ESSoS) 2016.

- Tool Demonstrations co-chair, 24th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE) 2016.

- Artifact Evaluation co-chair, ACM International Symposium on Software Testing and Analysis (ISSTA) 2016.

- Tool Demonstrations co-chair, IEEE and ACM International Conference on Automated Software Engineering (ASE) 2015.

- GI-Dagstuhl Seminar on Software Engineering for Self-Adaptive Systems, October 2014.

Program Committees

- 38th IEEE International Conference on Software Maintenance and Evolution (ICSME), 2022.

- 14th International Workshop on Search-Based Software Testing (SBST), 2022.

- 37th IEEE International Conference on Software Maintenance and Evolution (ICSME), 2021.

- ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE) 2020.

- 17th Working Conference on Mining Software Repositories (MSR), 2020.

- IEEE/ACM 7th International Conference on Mobile Software Engineering and Systems (MOBILESoft), 2020.

- IEEE International Conference on Software Testing, Verification and Validation (ICST), 2020.

- 35th IEEE International Conference on Software Maintenance and Evolution (ICSME), 2019.

- 39th ACM SIGPLAN International Conference on Programming Language Design and Implementation (PLDI), 2018.

- 40th ACM/IEEE International Conference on Software Engineering, (ICSE) 2018.

- IEEE International Conference on Software Testing, Verification and Validation (ICST), 2018.

- 39th ACM/IEEE International Conference on Software Engineering (ICSE), 2017.

- IEEE and ACM International Conference on Automated Software Engineering (ASE), 2017.

- 6th Software Security, Protection, and Reverse Engineering Workshop (SSPREW), 2016.

- 8th Symposium on Search Based Software Engineering (SSBSE), 2016.

- 32nd IEEE International Conference on Software Maintenance and Evolution (ICSME), Tool Demos Track, 2016.

- 13th Working Conference on Mining Software Repositories (MSR) 2016.

- ACM International Symposium on Software Testing and Analysis (ISSTA) 2016.

- IEEE International Conference on Software Testing, Verification and Validation (ICST) 2016.

- IEEE/ACM Third International Conference on Mobile Software Engineering and Systems (MOBILESoft) 2016.

- IEEE and ACM-SIGSOFT International Conference on Software Engineering (ICSE), Visions of 2025 and Beyond Track, 2016.

- IEEE and ACM-SIGSOFT International Conference on Software Engineering (ICSE) Workshops, 2016.

- 23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER), ERA Track 2016.

- 23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER) 2016.

- 31st Annual ACM/SIGAPP Symposium On Applied Computing (SAC), Service-Oriented Architectures and Programming (SOAP) Track 2016.

- Third International Workshop on Software Development Lifecycle for Mobile (DeMobile) 2015.

- ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE) 2015, Artifact Evaluation committee member.

- IEEE and ACM International Conference on Automated Software Engineering (ASE) 2015, member of the Expert Review Panel.

- ACM International Symposium on Software Testing and Analysis (ISSTA) 2015.

- IEEE and ACM-SIGSOFT International Conference on Software Engineering (ICSE), Software Engineering In Practice track, 2015.

- 10th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS) 2015, co-located with the IEEE and ACM-SIGSOFT International Conference on Software Engineering (ICSE).

- Italian Student Contest on Software Engineering (SCORE-it) 2015, co-located with the IEEE and ACM-SIGSOFT International Conference on Software Engineering (ICSE).

- ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE) 2014, Artifact Evaluation committee member.

- ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA) 2014, Artifact Evaluation committee member.

- IEEE and ACM-SIGSOFT International Conference on Software Engineering (ICSE), Posters track 2014.

- ACM SIGPLAN Conference on Systems, Programming, Languages and Applications (OOPSLA) 2013, Artifact Evaluation committee member.

- IEEE and ACM International Conference on Automated Software Engineering (ASE) 2013, member of the Expert Review Panel.

- Student Contest on Software Engineering (SCORE) 2013, co-located with the IEEE and ACM-SIGSOFT International Conference on Software Engineering (ICSE).

Reviewer for Technical Journals

- ACM Transactions on Information and System Security (TISSEC).

- ACM Transactions on Software Engineering and Methodology (TOSEM).

- IEEE Transactions on Software Engineering (TSE).

- IEEE Software.

- Journal of Systems and Software (JSS), Elsevier.

- Empirical Software Engineering, Springer.

- Journal of Software Practice and Experience, Wiley.

Honors and Awards

- 2021 Ramón y Cajal fellowship, which is the top national personal grant given by the Spanish Ministry of Economy and Competitiveness to fund researchers for 5 years. August 2021

- 2020 Emilio Aced award in privacy protection, given by the Agencia Española de Protecion de Datos (AEPD), for our research on parental control apps [Fea+20]

- Facebook Testing and Verification research award. November 2019

- Distinguished reviewer award at ICSME 2019. November 2019

- Distinguished Paper Award for "How do Apps Evolve in Their Permission Requests? A preliminary Study", 10th Seminar on Advanced Techniques & Tools for Software Evolution (SATToSE). June 2017

- MARIE CURIE Fellowship Award as part of the EU-funded project AMAROUT-II Europe (AMAROUT-II). 2015-2016

- Nomination for the Distinguished Paper Award for "Automatic Generation of Oracles for Exceptional Behaviors", 25th International Symposium on Software Testing and Analysis (ISSTA). July 2016.

- Special mention for the paper "Abnormal Sensitive Data Usage in Android Apps" at the Second Jornadas Nacionales de Investigación en Ciberseguridad (JNIC), June 2016.

- Nomination for the Distinguished Paper Award for "Mining Apps for Abnormal Usage of Sensitive Data", 37th International Conference on Software Engineering (ICSE). May 2015.

- Best paper award for "Search-Based Security Testing of Web Applications", 7th International Workshop on Search-Based Software Testing (SBST), June 2014.

- Award for the best seminar course "Mobile Testing and Analysis" of the summer semester, Saarland University. July 2013.

- Fritz Kutter Award for the best industry related Ph.D. thesis in computer science from a Swiss university. November 2011.

- Best student poster award, 16th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2008). November 2008.