# Dario Di Nucci – May 2019
## Curriculum Vitae – Including Summary of Publications

Dario Di Nucci, Male, Italian
**DATE OF BIRTH:** 3rd September, 1988
**PLACE OF BIRTH:** Isernia, Italy
**Languages:** Italian (native), English (High B2)

**ADDRESS:** Louis Hapstraat 198, 1040 Brussels, Belgium
**PHONE:** +32 486 13 99 51
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Dario Di Nucci is a research fellow at the Software Languages Lab of the Vrije Universiteit Brussel with Prof. Coen De Roover. He received a PhD in Management and Information Technology from the University of Salerno in 2018 advised by Prof. Andrea De Lucia with a thesis entitled "Methods and Tools for Focusing and Prioritizing the Testing Effort". His research is on empirical software engineering, in particular software maintenance and evolution and software testing. To this aim, he applies several techniques such as machine learning, search-based algorithms, and static analysis of source code.

## EDUCATION

**2014/12 – 2018/03**
**DOCTOR OF PHILOSOPHY (PH.D.) IN MANAGEMENT & INFORMATION TECHNOLOGY**
University of Salerno, Italy
Fully funded by University of Salerno
Dissertation titled "Methods and Tools for Focusing and Prioritizing the Testing Effort" advised by prof. Andrea De Lucia

**2017/06**
**13TH INTERNATIONAL SUMMER SCHOOL ON SOFTWARE ENGINEERING (ISSSE)**
University of Salerno, Italy

**2017/03 – 2017/05**
**VISITING STUDENT**
Delft University of Technology, The Netherlands
Supervision: Prof. Andy Zaidman

**2016/05 – 2016/07**
**VISITING STUDENT**
Delft University of Technology, The Netherlands
Supervision: Prof. Andy Zaidman

**2016/06**
**12TH INTERNATIONAL SUMMER SCHOOL ON SOFTWARE ENGINEERING (ISSSE)**
University of Salerno, Italy

**2015/09**
**INTERNATIONAL SUMMER SCHOOL ON SOFTWARE ENGINEERING (SE SCHOOL@UNIBZ 2015)**
Free University of Bolzano, Italy

**2013/03**
**ERASMUS IP HUMAN-MACHINE INTERACTION**
Reims, France

**2011/10 – 2014/09**
**MASTER'S DEGREE (M.SC.) IN COMPUTER SCIENCE**
University of Salerno, Italy
110/110 cum laude
Dissertation titled "A defect prediction model based on relationships between developers and modified files" promoted by professor Andrea De Lucia

**2007/10 – 2011/05**
**BACHELOR'S DEGREE (B.SC.) IN COMPUTER SCIENCE**
University of Molise, Italy
110/110 cum laude
Dissertation titled "Applications of mathematical models to semantic research" promoted by professor Giovanni Capobianco

# EMPLOYMENT HISTORY

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|---|---|
| **2018/12 – ACTUAL** | **POST-DOCTORAL LECTURER**<br>Vrije Universiteit Brussel, Belgium<br>*Capita Selecta of Software Engineering*<br>(elective course in first year Master's in Computer Science) |
| **01/2018 – ACTUAL** | **POST-DOCTORAL RESEARCHER**<br>Vrije Universiteit Brussel, Belgium<br>*Innoviris TeampUP project "INTiMALS INTelligent Modernisation Assistance for Legacy Software"*<br>*FWO EOS project "SECO-ASSIST: Automated Assistance for Developing Software in Ecosystems of the Future"* |
| **2014/12 – 2018/03** | **PH.D. STUDENT IN MANAGEMENT & INFORMATION TECHNOLOGY**<br>University of Salerno, Italy<br>Fully funded by University of Salerno. Advisor: Prof. Andrea De Lucia |
| **2014/04 – 2014/09** | **SOFTWARE DEVELOPER**<br>Gnome and GraphHopper<br>Google Summer of Code 2014 |
| **2011/09 – 2012/01** | **SOFTWARE DEVELOPER**<br>CercAziende.it, Venafro, Italy<br>Development of a search engine to index and search data on SQL databases |
| **2005/11 – 2005/12** | **CUSTOMER SERVICE REPRESENTATIVE / TECHNICAL SUPPORT**<br>eliquidMEDIA International Inc., Windsor, ON, Canada<br>Web development and customer relationship handling |

# TEACHING

**CAPITA SELECTA OF SOFTWARE ENGINEERING** (elective course in first year Master's in Computer Science)
Vrije Universiteit Brussel, Belgium
Co-holder of the course (holder: Prof. Coen De Roover)
2018-2019

**SOFTWARE ENGINEERING, MANAGEMENT AND EVOLUTION** (mandatory course in first year Master's in Computer Science)
University of Salerno, Italy
Teaching assistant (holder: Prof. Andrea De Lucia)
2016-2017, 2015-2016

**PROGRAMMING I** (mandatory course in first year Bachelor's in Computer Science)
University of Salerno, Italy
Teaching assistant
2016-2017 (holder: Prof. Riccardo Di Stasi)
2015-2016 (holder: Prof. Enrico Fischetti)

**SOFTWARE ENGINEERING** (mandatory course in third year Bachelor's in Computer Science)
University of Salerno, Italy
Teaching assistant (holder: Prof. Andrea De Lucia)
2016-2017, 2015-2016

**WEB DEVELOPMENT** (mandatory course in third year Bachelor's in Computer Science)
University of Salerno, Italy
Teaching assistant
2016-2017

**SOFTWARE ENGINEERING: MAINTENANCE AND TESTING** (mandatory course in first year Master's in Computer Science)
University of Salerno, Italy
Teaching assistant (holder: Prof. Andrea De Lucia)
2015-2016


## SUPERVISION OF MASTER'S THESIS - GRADUATED, CO-ADVISED:

**2016**    **[MT5] CHECKAPP: A TOOL FOR MONITORING JAVA APPLICATION PERFORMANCE**
Student: Elisa D'Eugenio – M.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**[MT4] PETRA: A POWER ESTIMATION TOOL FOR ANDROID APPLICATIONS**
Student: Antonio Prota – M.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**2015**    **[MT3] DEVELOPMENT AND COMPARISON OF NOVEL TECHNIQUES FOR SEARCH BASED TEST DATA GENERATION**
Student: Giovanni Grano – M.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**[MT2] DESIGN AND DEVELOPMENT OF A TOOL FOR THE AUTOMATIC GENERATION OF TEST CASES**
Student: Simone Scalabrino – M.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**[MT1] A COMBINED MODEL FOR THE PREDICTION OF DEFECTS**
Student: Giuseppe De Rosa – M.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia


## SUPERVISION OF BACHELOR THESIS - GRADUATED, CO-ADVISED:

**2017**    **[BT9] DESIGN AND DEVELOPMENT OF METHODS FOR TEST CASE MINIMIZATION**
Student: Francesco De Feo – B.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**[BT8]** D<small>ESIGN AND DEVELOPMENT OF METHODS FOR TEST CASE PRIORITIZATION</small>
Student: Giuseppe Sessa – B.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**[BT7]** D<small>ESIGN AND DEVELOPMENT OF A PLUGIN FOR OPTIMIZING REGRESSION TESTING</small>
Student: Gerardo Della Monica – B.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**[BT6]** D<small>ESIGN AND DEVELOPMENT OF A PLUGIN FOR THE DETECTION OF ENERGY DEFECTS OF MOBILE</small>
**APPLICATIONS**
Student: Sara Zaino – B.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**[BT5]** D<small>ESIGN AND DEVELOPMENT OF A DEFECT PREDICTION TOOL</small>
Student: Giuseppina Tufano – B.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**[BT4]** D<small>EVELOPMENT OF A SOFTWARE ENERGY ESTIMATION METHODOLOGY IN AN INTEGRATED DEVELOPMENT</small>
**ENVIRONMENT**
Student: Roberto Contaldo – B.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**[BT3]** D<small>ESIGN AND DEVELOPMENT OF A DEFECT PREDICTION TOOL BY USING CROSS-PROJECT TECHNIQUES</small>
Student: Pasquale Martiniello – B.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**2016**　　　**[BT2]** T<small>RIO: A</small> T<small>OOL FOR</small> R<small>EGRESSION TEST</small>I<small>NG</small> O<small>PTIMIZATION</small>
Student: Antonio Luca D'Avanzo – B.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

**[BT1]** D<small>ESIGN AND DEVELOPMENT OF A DEFECT PREDICTION TOOL</small>
Student: Fabiano Pecorelli – B.Sc. in Computer Science – Advisor: Prof. Andrea De Lucia

# ACADEMIC RECORD

Journal Articles: 4, Conference Papers: 11 (main track), 5 (tool demonstrations track), Workshop Papers: 4
Citations: 200, h-index: 10, https://scholar.google.it/citations?user=YJqcbnIAAAAJ&hl=it

## 1.  JOURNAL PAPERS

[J4] D. Di Nucci, A. Panichella, A. Zaidman, A. De Lucia
A Test Case Prioritization Genetic Algorithm guided by the Hypervolume Indicator
IEEE Transactions on Software Engineering (TSE), 2019, to appear.

[J3] F. Palomba, D. Di Nucci, A. Panichella, A. Zaidman, A. De Lucia
On the Impact of Code Smells on the Energy Consumption of Mobile Applications
Elsevier Information and Software Technology (INFSOFT), 2019, Volume 105, 13 pages, 43 - 55.

[J2] D. Di Nucci, F. Palomba, G. De Rosa, G. Bavota, R. Oliveto, A. De Lucia
A Developer Centered Bug Prediction Model
IEEE Transactions on Software Engineering (TSE), 2018, Volume 44 Issue 1, 21 pages, 5 - 24.

[J1] D. Di Nucci, F. Palomba, R. Oliveto, A. De Lucia
Dynamic Selection of Classifiers in Bug Prediction: an Adaptive Method
IEEE Transactions on Emerging Topics in Computational Intelligence (TETCI), 2017, Volume 1 Issue 3, 11 pages, 202 - 212.

## 2.  CONFERENCE PAPERS, MAIN TRACK

[C11] F. Pecorelli, F. Palomba, D. Di Nucci, A. De Lucia
Comparing Heuristic and Machine Learning Approaches for Metric-Based Code Smell Detection
In Proceedings of the IEEE/ACM 27th International Conference on Program Comprehension (ICPC 2019) – Montreal, Canada, 2019, 12 pages, to appear.

[C10] G. Catolino, D. Di Nucci, F. Ferrucci
Cross-Project Just-in-Time Bug Prediction for Mobile Apps: An Empirical Assessment
In Proceedings of the 6th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft 2019) – Montreal, Canada, 2019, 12 pages, to appear.

[C9] J. De Bleser, D. Di Nucci, C. De Roover
Assessing Diffusion and Perception of Test Smells in Scala Projects
In Proceedings of the IEEE/ACM 16th International Conference on Mining Software Repositories (MSR 2019) – Montreal, Canada, 2019, 11 pages, to appear.

[C8] Y. Pacheco, J. De Bleser, T. Molderez, D. Di Nucci, W. De Meuter, C. De Roover
Mining Scala Framework Extensions for Recommendation Patterns
In Proceedings of the 26th IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER 2018) – Hangzhou, China, 2019, 10 pages, 514 - 523.

[C7] P. Salza, F. Palomba, D. Di Nucci, C. D'Uva, A. De Lucia, F. Ferrucci
Do Developers Update Third-Party Libraries in Mobile Apps?
In Proceedings of the IEEE/ACM 26th International Conference on Program Comprehension (ICPC 2018), Gothenburg, Sweden, 2018, 11 pages, 255 - 265.

[C6] L. Pascarella, F. Geiger, F. Palomba, D. Di Nucci, I. Malavolta, A. Bacchelli
Self-Reported Activities of Android Developers
In Proceedings of the 5th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft 2018), Gothenburg, Sweden, 2018, 12 pages, 144 - 155.

[C5] D. Di Nucci, F. Palomba, D. A. Tamburri, A. Serebrenik, A. De Lucia
Detecting Code Smells using Machine Learning Techniques: Are We There Yet?
In Proceedings of the 25th IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER 2018) – Campobasso, Italy, 2018, 10 pages, 612 - 621.

[C4] D. Di Nucci, F. Palomba, A. Prota, A. Panichella, A. Zaidman, A. De Lucia
Software-Based Energy Profiling of Android Apps: Simple, Efficient and Reliable?
In Proceedings of the 24th IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER 2017) - Klagenfurt, Austria, 2017, 12 pages, 103-114

[C3] S. Scalabrino, G. Grano, D. Di Nucci, R. Oliveto, A. De Lucia
Search-based Testing of Procedural Programs: Iterative Single-Target or Multi-Target Approach?
In Proceedings of the Symposium on Search-Based Software Engineering (SSBSE 2016) - Raleigh, NC, United States, 2016, 15 pages, 64 - 79

[C2] D. Di Nucci, F. Palomba, S. Siravo, G. Bavota, R. Oliveto, A. De Lucia
On the Role of Developer's Scattered Changes in Bug Prediction.
In Proceedings of the 31st International Conference on Software Maintenance and Evolution (ICSME 2015) - Bremen, Germany, 2015, 10 pages, 241-250

[C1] D. Di Nucci, A. Panichella, A. Zaidman, A. De Lucia
Hypervolume-based Search for Test Case Prioritization.
In Proceedings of the Symposium on Search-Based Software Engineering (SSBSE 2015) - Bergamo, Italy, 2015, 15 pages, 157-172

## 3. CONFERENCE PAPERS, TOOL DEMONSTRATIONS TRACK

[D5] S. Scalabrino, G. Grano, D. Di Nucci, M. Guerra, A. De Lucia, H. Gall, R. Oliveto
OCELOT: a Search-Based Test-Data Generation Tool for C
In Proceeding of the 33rd IEEE/ACM International Conference on Automated Software Engineering (ASE 2018) - Tool Demonstrations Track, Montpellier, France, 2018, 4 pages, 868 - 871.

[D4] F. Geiger, I. Malavolta, L. Pascarella, F. Palomba, D. Di Nucci, A. Bacchelli
A Graph-based Dataset of Commit History of Real-World Android apps
In Proceedings of the IEEE/ACM 15th International Conference on Mining Software Repositories (MSR 2018), Gothenburg, Sweden, 2018, 5 pages, 30 - 33.

[D3] D. Di Nucci, F. Palomba, A. Prota, A. Panichella, A. Zaidman, A. De Lucia
PETrA: a Software-Based Tool for Estimating the Energy Profile of Android Applications
In Proceedings of the 39th International Conference on Software Engineering (ICSE 2017) - Demonstrations Track, Buenos Aires, Argentina, 2017, 4 pages, 3-6.

[D2] F. Palomba, D. Di Nucci, A. Panichella, A. Zaidman, A. De Lucia
Lightweight Detection of Android-specific Code Smells: the aDoctor Project.
In Proceedings of the 24th IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER 2017) - Tool Track, Klagenfurt, Austria, 2017, 5 pages, 487-491

[D1] F. Palomba, D. Di Nucci, M. Tufano, G. Bavota, R. Oliveto, D. Poshyvanyk, A. De Lucia
Landfill: an Open Dataset of Code Smells with Public Evaluation.
In Proceedings of the IEEE/ACM 12th Working Conference on Mining Software Repositories (MSR 2015) - Florence, Italy, 2015, 4 pages, 482-485

## 4. CONFERENCE PAPERS, MISCELLANEOUS TRACKS

[M1] D. Di Nucci
Methods and Tools for Focusing and Prioritizing the Testing Effort
In Proceeding of the 34th IEEE International Conference on Software Maintenance and Evolution (ICSME 2018) - Doctoral Symposium Track, Madrid, Spain, 2018, 5 pages, 722 - 726.

## 5. PUBLISHED WORKSHOP PAPERS

[W4] D. Tamburri, F. Palomba, D. Di Nucci, L. Di Giacomo
Omniscient DevOps Analytics
In Software Engineering Aspects of Continuous Development and New Paradigms of Software Production and Deployment: 1st International Workshop (DEVOPS 2018), Chateau de Villebrumier, France, 2018, 48 - 59

[W3] D. Di Nucci, F. Palomba, A. De Lucia
Evaluating the Adaptive Selection of Classifiers for Cross-Project Bug Prediction
In Proceedings of the 6th International Workshop on Realizing Artificial Intelligence Synergies in Software Engineering (RAISE 2018), Gothenburg, Sweden, 2018, 7 pages, 48 - 54.

[W2] D. Di Nucci, A. De Lucia
The Role of Meta-Learners in the Adaptive Selection of Classifiers
In Proceeding of 2nd Workshop on Machine Learning Techniques for Software Quality Evaluation (MaLTeSQuE 2018), Campobasso, Italy, 2018, 6 pages, 7 - 12.

[W1] F. Palomba, D. Di Nucci, A. Panichella, R. Oliveto, A. De Lucia
On the Diffusion of Test Smells in Automatically Generated Test Code: An Empirical Study.
In Proceedings of the 9th International Workshop on Search-Based Software Testing (SBST 2016) - Austin, TX, United States, 2016, 10 pages, 5-14

## 6. INVITED TALKS

| | |
|---|---|
| **2019** | **[T4] MINING SOURCE CODE^3: MINING IDIOMS, USAGES AND EDITS**<br>FOSDEM, Brussels, Belgium, February 3rd 2019 |
| **2018** | **[T3] DEFECT PREDICTION: USING MACHINE LEARNING FOR FOCUSING THE TESTING EFFORT**<br>Jheronimus Academy of Data Science, 's-Hertogenbosch, The Netherlands, March 9th 2018 |
| **2017** | **[T2] DEFECT PREDICTION: USING MACHINE LEARNING FOR FOCUSING THE TESTING EFFORT**<br>Jheronimus Academy of Data Science, 's-Hertogenbosch, The Netherlands, December 5th 2017 |
| | **[T1] DIAGNOSE AND DETECT ENERGY FLAWS OF ANDROID APPS**<br>Vrije Universiteit Brussel, Brussels, Belgium. March 23rd 2017 |

## 7. SERVICE TO THE SCIENTIFIC COMMUNITY

### ORGANIZATION OF SUMMER SCHOOLS

**2019**  **COMMITTEE MEMBER**
14th International Summer School on Software Engineering, University of Salerno, Italy

**2017**  **SCIENTIFIC SECRETARIAT**
13th International Summer School on Software Engineering, University of Salerno, Italy

**2016**  **SCIENTIFIC SECRETARIAT**
12th International Summer School on Software Engineering, University of Salerno, Italy

### PROGRAM COMMITTEE MEMBER OF INTERNATIONAL CONFERENCES

**2019**  35th IEEE International Conference on Software Maintenance and Evolution (ICSME) - Tool Demo Track

27th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE) – Artefact Evaluation Track

6th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft) – Student Research Competition

5th International Conference on Advances and Trends in Software Engineering (SOFTENG)

**2018**  34th IEEE International Conference on Software Maintenance and Evolution (ICSME) - Tool Demo Track

5th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft) – Student Research Competition

10th International Conference on Advances in System Testing and Validation Lifecycle (VALID)

**2017**  9th International Conference on Advances in System Testing and Validation Lifecycle (VALID)

### PROGRAM COMMITTEE MEMBER OF INTERNATIONAL WORKSHOPS

**2019**  3rd Workshop on Machine Learning Techniques for Software Quality Evaluation (MaLTeSQuE)

**2018**  1st International Workshop on Cloud-Native Applications Design and Experience (CNAX)

2nd Workshop on Machine Learning Techniques for Software Quality Evaluation (MaLTeSQuE)

### EDITORIAL BOARD MEMBER OF INTERNATIONAL JOURNALS AND BLOG

**2019 - ACTUAL**  IEEE Software Blog

### REVIEWER

**INTERNATIONAL JOURNALS**  Advances in Software Engineering - Elsevier
Arabian Journal for Science and Engineering – Springer

Computational Intelligence - Wiley
Empirical Software Engineering - Springer
IEEE Access – IEEE
IET Software - Institution of Engineering and Technology
Information Processing Letters - Elsevier
Journal of King Saud University, Computer and Information Sciences - Elsevier
Journal of Software: Evolution and Process – Wiley
Journal of Systems and Software – Elsevier
Neurocomputing - Elsevier
Science of Computer Programming - Elsevier
Scientific Programming - Hidawi
Software Quality Journal – Springer
Transactions on Knowledge and Data Engineering – IEEE
Transactions on Reliability - IEEE

**INTERNATIONAL CONFERENCES**

IEEE International Conference on Software Analysis, Evolution, and Reengineering: 2017, 2018
IEEE International Conference on Program Comprehension: 2016, 2019
IEEE International Conference on Software Maintenance and Evolution: 2016 (ERA Track), 2018, 2019
International Conference on Business Information Systems: 2015, 2016
International Conference on Distributed Multimedia Systems: 2015, 2016
International Conference on Enterprise Information Systems: 2015, 2016, 2017
International Conference on Mining Software Repositories: 2019

## 8. AWARDS

**2017**  **NSF TRAVEL SUPPORT**
Symposium on Search-Based Software Engineering (SSBSE), Raleigh, NC, United States

**2015**  **ACM SIGSOFT STUDENT TRAVEL GRANT**
37th ACM/IEEE International Conference on Software Engineering (ICSE), Florence, Italy