CURRICULUM VITAE
SARRO FEDERICA

PERSONAL INFORMATION

Name: Federica Sarro

Date & Place of Birth: 25/03/1984, Avellino (Italy)

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EDUCATIONS AND TRAINING

2012 – From 3rd December 2012 she is a Research Assistant at CREST centre, Department of Computer Science, University College London, under the supervision of Prof. Mark Harman

2009-2012 – From 1st November 2009 to 31st October 2012 she has been a PhD student (with scholarship) of the Doctorate Programme in "Scienze Matematiche, Fisiche e Informatiche – XI cycle" at the University of Salerno, advisor Prof. Filomena Ferrucci.

2009 – From May to November 2009 she has been a research fellow at the Department of Mathematics and Informatics of the University of Salerno, Italy.

2009 – She received the Master Degree (summa cum laude) in Computer Science from the University of Salerno (Italy), advisor Prof. Filomena Ferrucci.

2007 – She got the First Certificate in English (FCE), University of Cambridge ESOL Examinations. This exam is set at Level B2 of the Council of Europe's Common European Framework of Reference for Languages (CEFR).

2006 – She received the Bachelor Degree (cum laude) in Computer Science from the University of Salerno (Italy), advisor Prof. Giancarlo Nota.

RESEARCH INTERESTS

Her research activity is mainly focused on the definition and the empirical evaluation of Search-Based approaches for Software Engineering, with specific interest in predictive modelling and software quality. In particular, she has investigated the use of Genetic Programming and Tabu Search in the context of Software Development Effort Estimation [B3][C8] both to build estimation methods [C7][C13][C23][C17][C19][C15] and to enhance the use of existing estimation techniques [J1][C16]. As for software quality, a combination of Genetic Algorithm and Support Vector Machine was defined and empirically assessed for fault prediction in different software releases [C6][C9]. She is actually working on the use of Search-Based approaches for Software Testing focusing on the use of Genetic Algorithms for the automatic generation of test suites for Object Oriented software and on the parallel applications of these techniques exploiting emergent paradigms, such as Cloud Computing and Graphical Processing Unit [B1][C4]. Her research interests also include metrics for sizing software products **Errore. L'origine riferimento non è stata trovata.Errore. L'origine riferimento non è stata trovata.**[C1][C10][C12][C20][C22] and Human Computer Interaction [B2][B4][C11][C14][C18][C21].

PROFESSIONAL SKILLS AND COMPENTENCE

She has a solid background in Software Engineering and familiarity and experience with search based optimization algorithms, predictive modelling, machine learning, statistical analysis, and experimental techniques as well as the

ability to organize challenging problems, develop new solutions, and carry out empirical research to assess if these solutions have a significant impact. She is able to operate at various levels of autonomy as well as to work in teams. She is quite versatile and always eager to tackle new problems thanks to her ability to quickly pick up new technologies and adjust to new ways of thinking. She has a strong passion for research and determination to advance the state of software engineering.

AWARDS

1. Google Diversity Grant achieved at the Fifth International Conference on Software Testing, Verification and Validation (ICST 2012);
2. SIGAPP Student Travel Award achieved at the 27th Symposium On Applied Computing (ACM SAC 2012);
3. Best Paper Award achieved at the 6th International Conference on Predictive Models in Software Engineering for the paper [C16].

PROFESSIONAL ACTIVITIES

Invited Talks and Seminar

- "Search-Based Approaches for Software Development Effort Estimation", Artificial Intelligence and Natural Computation Seminar Series, School of Computer Science, University of Birmingham, Birmingham, 7 November 2011
- "Genetic Programming for Effort Estimation", 14th CREST Open Workshop: Genetic Programming for Software Engineering, CREST centre at University College of London, London, 25th July, 2011.

Talks at International Conferences

- "Functional vs. Design Measures for Model-Driven Web Applications: A Case Study in the Context of Web Effort Estimation", 3rd International Workshop on Emerging Trends in Software Metrics (WETSoM 2012), ICSE 2012 Workshop, Zurich, Switzerland, June, 2-9, 2012.
- "A Parallel Genetic Algorithm Based on Hadoop MapReduce for the Automatic Generation of JUnit Test Suites", 5th International Conference on Software Testing, Verification and Validation, Montreal, Canada, April, 17-21, 2012.
- "Towards Improving Usability of Authentication Systems Using Smartphones for Logical and Physical Resource Access in a Single Sign-On Environment", 8th Conference of the Italian Chapter of AIS, Rome, Italy, October, 7-8, 2011.
- "A Matching-Algorithm based on the Cloud and Positioning Systems to Improve Carpooling", 17th International Conference on Distributed Multimedia Systems, Florence, Italy, August 18-20, 2011.
- "Search-Based Approaches for Software Development Effort Estimation" 12th International Conference on Product-Focused Software Development and Process Improvement (Doctoral Symposium), Torre Canne (BR), Italy, June 20, 201.
- "A Crawljax Based Approach to Exploit Traditional Accessibility Evaluation Tools for AJAX Applications", 7th Conference of the Italian Chapter of AIS, Naples, Italy, October, 8-9, 2010.
- "How Effective is Tabu Search to Configure Support Vector Regression for Effort Estimation?", 6th International Conference on Predictive Models in Software Engineering, Timisoara, Romania, September, 12-13, 2010.
- "Genetic Programming for Effort Estimation: an Analysis of the Impact of Different Fitness Functions", 2nd International Symposium on Search Based Software Engineering, Benevento, Italy, September, 7-9, 2010.
- "Using search-based techniques for software development effort estimation", 7th International Summer School on Software Engineering, DMI - University of Salerno, Italy, July, 6-9, 2010.

Referee activities

- 16th International Conference on Evaluation & Assessment in Software Engineering - EASE 2012 - May 14-15, 2012, Ciudad Real, Spain.

- 27th ACM Symposium on Applied Computing - ACM SAC 2012, Software Engineering Track - March 26-30, 2012 - Riva del Garda (Trento), Italy
- 8th International Conference on the Quality of Information and Communications Technology - QUATIC 2012- September, 3-6, 2012, Lisbon, Portugal.
- 23rd International Conference on Database and Expert Systems Applications - DEXA'12 - September 3 - 6, 2012, Vienna, Austria.
- 7th International Conference on Web Information System and Technologies - WEBIST 2011- 6-9 May 2011, Noordwijkerhout, The Netherlands.
- 26th ACM Symposium on Applied Computing - ACM SAC 2011, Software Engineering Track - March 21-25, 2011, TaiChung, Taiwan.
- 13th International Conference on Enterprise Information Systems - ICEIS 2011 - 8-11 June 2011, Beijing, China.
- 22nd International Conference on Database and Expert Systems Applications - DEXA'11 - August 29 - September 2, 2011, Toulouse, France
- 25th ACM Symposium on Applied Computing - ACM SAC 2010, Software Engineering Track – 22-26 March 2010 , Sierre, Switzerland.
- 6th International Conference on Web Information System and Technologies - WEBIST 2010- 7-10 April 2010, Valencia, Spain.
- 12th International Conference on Enterprise Information Systems - ICEIS 2010 - 8-12 June 2010, Funchal, Madeira, Portugal.
- 21st International Conference on Database and Expert Systems Applications - DEXA'10 - 30 August - 3 September 2010, Bilbao, Spain
- 7th Conference of the Italian Chapter of AIS - ITAIS 2010 - 8-9 October, 2010, Naples - Italy.
- "Evolutionary Computation and Optimization Algorithms in Software Engineering: Applications and Techniques", a book edited by Monica Chis, published by IGI Global.

Organising committee member

- Scientific Secretariat member of the 7th, 8th, and 9th International Summer School on Software Engineering, (Salerno, Italy).
- Program Committee member of the 6th International Conference on Web Information Systems and Technologies, 2010 (Valencia, Spain).

Teaching

She taught the following academic courses:
- Academic Year 2010/2011
  - Fall Semester: 12 hours of interactive teaching in small groups for Computer Architecture course, Bachelor degree in Computer Science – University of Salerno, Italy.
  - Spring Semester: 24 hours of interactive teaching in small groups for Operative System course, Bachelor degree in Computer Science – University of Salerno, Italy.
- Academic Year 2011/2012
  - Fall Semester: 32 hours of interactive teaching in small groups for Computer Architecture course, Bachelor degree in Computer Science – University of Salerno, Italy.
  - Fall Semester: 24 hours of interactive teaching in small groups for Programming Language course, Bachelor degree in Computer Science – University of Salerno, Italy.
  - Spring Semester: 16 hours of interactive teaching in small groups for Operative System course, Bachelor degree in Computer Science – University of Salerno, Italy.

She co-supervised with Prof. Filomena Ferrucci six Bachelor and three Master thesis at University of Salerno, Italy.

CONFERENCES AND COURSES ATTENDED

- International Workshop on Emerging Trends in Software Metrics (WETSoM 2012), ICSE 2012 Workshops, Zurich, Switzerland (June, 2-9, 2012).

- 5th International Conference on Software Testing, Verification and Validation, Montreal, Canada (April, 17-21, 2012).
- 15th CREST Open Workshop: Predictive Modelling and Search Based Software Engineering, CREST centre at University College of London, London, (24 - 25 October, 2011).
- 14th CREST Open Workshop: Genetic Programming for Software Engineering, CREST centre at University College of London, London, (25th July, 2011).
- 8th Conference of the Italian Chapter of AIS, Rome, Italy (October, 7-8, 2011)
- 8th International Summer School on Software Engineering, University of Salerno, Italy (July, 11-15, 2011)
- 12th International Conference on Product-Focused Software Development and Process Improvement, Torre Canne (BR), Italy, (June 20-22, 2011)
- 7th Conference of the Italian Chapter of AIS, Naples, Italy (October, 8-9, 2010)
- 6th International Conference on Predictive Models in Software Engineering , Timisoara, Romania (September, 12-13, 2010)
- 2nd International Symposium on Search Based Software Engineering, Benevento, Italy (September, 7-9, 2010)
- Case Summer School on Applied Software Engineering: Empirical Analysis of Software Processes and Products Bozen, Italy (July, 19-23, 2010)
- 7th International Summer School on Software Engineering, DMI - University of Salerno, Italy (July, 6-9, 2010)
- 6th International Summer School on Software Engineering, DMI - University of Salerno, Italy (September, 16-18, 2009)
- 6th Meeting of the Italian Interest Group in Software Engineering (GIIS 2009), Salerno, Italy (September, 14-15 2009)
- Summer School on Scientific Data Visualization and 3D Graphic, CINECA , Casalecchio di Reno (BO), Italy (June, 16-26, 2009).
- SAVRO: Simulation and virtual reality in robotics for industrial assembly processes, Universidad Politécnica de Valencia, Spain (April, 6-18, 2008).

PUBLICATIONS

INTERNATIONAL JOURNAL

[J1] A. Corazza, S. Di Martino, F. Ferrucci, C. Gravino, F. Sarro, E. Mendes, "Using Tabu Search to Configure Support Vector Regression for Effort Estimation", to appear in Empirical Software Engineering, doi: http://dx.doi.org/10.1007/s10664-011-9187-3.

INTERNATIONAL BOOK CHAPTERS

[B1] S. Di Martino, F. Ferrucci, C. Gravino, V. Maggio, F. Sarro, ""Towards Migrating Genetic Algorithms for Test Data Generation to the Cloud", in Software Testing in the Cloud: Perspectives on an Emerging Discipline, Scott Tilley and Tauhida Parveen (Editors), IGI Global, DOI: 10.4018/978-1-4666-2536-5, ISBN13: 9781466625365.

[B2] G. Carullo, F. Ferrucci, F. Sarro, "Towards Improving Usability of Authentication Systems Using Smartphones for Logical and Physical Resource Access in a Single Sign-On Environment", in Springer book of Information Systems: Crossroads for Organization, Management, Accounting and Engineering, M. De Marco, D. Te'eni, V. Albano, S. Za (Editors), ISBN: 978-3-7908-2788-0.

[B3] F. Ferrucci, C. Gravino, R. Oliveto, F. Sarro, "Using Evolutionary Based Approaches to Estimate Software Development Effort", in Evolutionary Computation and Optimization Algorithms in Software Engineering: Applications and Techniques, M. Chis (ed.), IGI Global, ISBN13: 9781615208098.

[B4] F. Ferrucci, D. Ronca, F. Sarro, S. Abrahao, "A Crawljax Based Approach to Exploit Traditional Accessibility Evaluation Tools for AJAX Applications", in Springer book of Information Technology and Innovation Trends in Organizations, A. D'Atri, M. Ferrara, J.F. George, P. Spagnoletti (Editors), ISBN: 978-3-7908-2631-9.

INTERNATIONAL CONFERENCES

[C1] F. Ferrucci, M. Harman, J. Ren, F. Sarro. Not Going to Take this Anymore: Multi-Objective Overtime Planning for Software Engineering Projects. ICSE 2013, to appear.

[C2] F. Ferrucci, E. Mendes, F. Sarro "Web effort estimation: the value of cross-company data set compared to single-company data set" in Procs. of International Conference on Predictor Models in Software Engineering, PROMISE 2012: 29-38

[C3] L. De Marco, F. Ferrucci, C. Gravino, F. Sarro, S. Abrahao, J. Gomez, "Functional vs. Design Measures for Model-Driven Web Applications: A Case Study in the Context of Web Effort Estimation", in Proceedings of the 3rd International Workshop on Emerging Trends in Software Metrics (WETSoM), ICSE 2012 Workshops, pp.21-27, ISBN: 978-1-4673-1762-7.

[C4] L. Di Geronimo, F. Ferrucci, A. Murolo, F. Sarro, "A Parallel Genetic Algorithm Based on Hadoop MapReduce for the Automatic Generation of JUnit Test Suites", in Proceedings of the 5th Conference on Software Testing, Verification and Validation (ICST2012), Workshop on SBST, pp. 785-793.

[C5] F. Ferrucci, M. Harman, J. Ren, F. Sarro, "Not Going to Take this Anymore: Multi-Objective Overtime Planning for Software Engineering Projects" , under revision (ICSE 2013).

[C6] F. Sarro, S. Di Martino, F. Ferrucci, C. Gravino, "A Further Analysis on the Use of Genetic Algorithm to Configure Support Vector Machines for Inter-Release Fault Prediction", in Proceedings of the 27th ACM Symposium On Applied Computing (ACM SAC 2012), Software Engineering Track, pp.1215-1220.

[C7] F. Sarro, F. Ferrucci, C. Gravino, "Single and Multi Objective Genetic Programming for Software Development Effort Estimation", in Proceedings of the 27th ACM Symposium On Applied Computing (ACM SAC 2012), Software Engineering Track, pp.1221-1226.

[C8] F. Sarro, "Search-Based Approaches for Software Development Effort Estimation", PROFES 2011 Doctoral Symposium (part of the 12th International Conference on Product-Focused Software Development and Process Improvement), ACM Inc., pp. 38-43, ISBN: 978-1-4503-0783-3.

[C9] S. Di Martino, F. Ferrucci, C. Gravino, F. Sarro, "A Genetic Algorithm to configure Support Vector Machines for Predicting Fault-Prone Components", in Procs. of the 12th International Conference on Product-Focused Software Development and Process Improvement (PROFES 2011), LNCS Springer vol. 6759, pp. 247-261, ISBN: 978-3-642-21842-2.

[C10] S. Di Martino, F. Ferrucci, C. Gravino, F. Sarro, "Using Web Objects for Development Effort Estimation of Web Applications: A Replicated Study", in Procs. of the 12th International Conference on Product-Focused Software Development and Process Improvement (PROFES 2011), LNCS Springer 6759, pp. 186-201, ISBN: 978-3-642-21842-2.

[C11] S. Di Martino, R. Galiero, C. Giorio, F. Ferrucci, F. Sarro, "A Matching-Algorithm based on the Cloud and Positioning Systems to Improve Carpooling", 17th International Conference on Distributed Multimedia Systems (DMS2011), pp- 90-95, ISBN:1-891706-30-6.

[C12] F. Ferrucci, C. Gravino, F. Sarro, "A case study on the conversion between IFPUG and COSMIC", 37th EUROMICRO Conference on Software Engineering and Advanced Applications (SEAA 2011), August 30-September 2, 2011, Oulu, Finland.

[C13] F. Ferrucci, F. Sarro, C. Gravino, "How Multi-Objective Genetic Programming is Effective for Software Development Effort Estimation?", 3rd International Symposium on Search Based Software Engineering (SSBSE 2011), Lecture Notes in Computer Science vol. 6956, pp. 274-275.

[C14] G. Carullo, F. Ferrucci, F. Sarro, "Plugging a Secure and Usable Physical/Logical Authentication System into Shibboleth Using a Smartphone", in Procs. of the 8th Conference of the Italian Chapter of AIS (ITAIS 2011).

[C15] F. Ferrucci, C. Gravino, R. Oliveto, F. Sarro, "Genetic Programming for Effort Estimation: an Analysis of the Impact of Different Fitness Functions", in Procs. of 2nd International Symposium on Search Based Software Engineering (SSBSE 2010). IEEE Computer Society, pp. 89-98, ISBN: 978-0-7695-4195-2

[C16] **(Best Paper Award)** A. Corazza, S. Di Martino, F. Ferrucci, C. Gravino, F. Sarro, E. Mendes, "How Effective is Tabu Search to Configure Support Vector Regression for Effort Estimation?", in Procs. of International Conference on Predictor Models in Software Engineering (PROMISE10), ACM Inc, pp. 1-10, ISBN: 978-1-4503-0404-7.

[C17] F. Ferrucci, C. Gravino, R. Oliveto, F. Sarro, "Estimating Software Development Effort Using Tabu Search", in Procs. of 2th International Conference on Enterprise Information Systems (ICEIS 2010), SciTePress, vol.1, pp. 236-241, ISBN: 978-989-8425-04-1.

[C18] F. Ferrucci, P. D'Ambrosio, M. Tucci, F. Sarro, "An Approach for the Development of DOOH-Oriented Information Systems", in Procs. of 2th International Conference on Enterprise Information Systems (ICEIS 2010), SciTePress, vol.3, pp. 326-331, ISBN: 978-989-8425-06-5.

[C19] F. Ferrucci, C. Gravino, E. Mendes, R. Oliveto, F. Sarro, "Investigating Tabu Search for Web Effort Estimation", in Procs. of 36th EUROMICRO Conference on Software Engineering and Advanced Applications (SEAA 2010), IEEE Computer Society, pp.350-357.

[C20] S. Abrahao, F. Ferrucci, L. De Marco, C. Gravino, F. Sarro, "A COSMIC Measurement Procedure for Sizing Web Applications Developed using the OO-H Method", in Procs. of Workshop on Advances in FSM and Effort Estimation, 2010.

[C21] F. Ferrucci, D. Ronca, F. Sarro, S. Abrahao, "A Crawljax Based Approach to Exploit Traditional Accessibility Evaluation Tools for AJAX Applications", in Procs. of 7th Conference of the Italian Chapter of AIS (ITAIS 2010), ISBN 978-88-6105-124-9

[C22] L. Buglione, C. Gencel, F. Ferrucci, C. Gravino, F. Sarro, "Which COSMIC Base Functional Components are Significant in Estimating Web Application Development? An Empirical Study", in Procs. of IWSM/MENSURA 2010.

[C23] F. Ferrucci, C. Gravino, R. Oliveto, F. Sarro, "Using Tabu Search to Estimate Software Development Effort", in Procs. of IWSM/MENSURA 2009. LNCS 5891, pp. 307-320.

TECHNICAL REPORTS

[TR1] F. Ferrucci, C. Gravino, R. Oliveto, F. Sarro, "Genetic Programming for Software Development Effort Estimation", technical report.

December 5th 2012