Sebastiano Panichella - Curriculum vitae

Contact Information

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Google Scholar Ref:
https://scholar.google.it/citations?user=HiNuBFgAAAAJ&hl=en&oi=ao
Detailed CV: https://goo.gl/VUYUa1

EDUCATION

Sebastiano Panichella was born (19/12/1986) in Isernia (Italy), he received (cum laude) the Laurea in Computer Science from the University of Salerno (Italy) in December 2010 defending a thesis on IR-based Traceability Recovery. He received the PhD in Computer Science from the University of Sannio (Department of Engineering) defending, in **18 July 2014**, the thesis entitled *"Supporting Newcomers in Open Source Software Development Projects"*. During the PhD his work was supervised by ***Prof. Massimiliano Di Penta and Prof. Gerardo Canfora***.

Employment history & Research Goals and Interests

Currently he is a (Permanent) Senior Computer Science Researcher at Zurich University of Applied Science (ZHAW), from (***20-08-2018***). Previously he was postdoc at University of Zurich (01-11-2014 - 19-08-2018) working in the lab of Prof. Gall.
His main **research goal** is to conduct industrial research, involving both industrial and academic collaborations, to sustain the Internet of Things (IoT) vision, where future smart cities will be characterized by millions of smart systems (e.g., cyber-physical systems) connected over the internet, controlled by complex embedded software implemented for the cloud.
His **research interests** are in the domain of Software Engineering (SE) and cloud computing (CC): DevOps (e.g., Continuous Delivery, Continuous integration), Machine learning applied to SE, Software maintenance and evolution (with particular focus on Cloud, mobile, and Cyber-physical applications), Mobile Computing. Moreover, he is promoting research on *Summarization Techniques for Code, Changes, and Testing*. He is a **member of IEEE**.

These research work involved relevant industrial companies (e.g., ING NEDERLAND, Sony Mobile Communication) and their extensions will involve further industrial organizations (e.g., Allianz, Facebook, Oracle Corporation, Google, etc.) and open source projects. He serves and has served as program committee member of various international conference (e.g., ICSE, SBST, ASE, ICPC, ICSME, SANER, MSR, SEAA) and as reviewer for various international journals (e.g., TSE, TOSEM, EMSE, JSS, IST, JSEP) in the fields of software engineering and evolutionary computation. He is currently Editorial Board Member of *Journal of Software: evolution and process* (JSEP) and Lead (or Co-lead) Guest editor of special issues at EMSE and IST journals.

Institutional responsibilities

(Permanent) Senior Research Associate at ZHAW (from 20-08-2018)

Approved research projects

EU projects

- Sebastiano Panichella wrote an H2020 proposal (as technical coordinator) for the EU H2020-ICT-2018-20 call, entitled COSMOS, contract no. 957254. COSMOS was recently selected for funding by the H2020. Much of the increasing complexity of ICT systems is being driven by the more distributed and heterogeneous nature of these systems, with Cyber-Physical Systems accounting for an increasing portion of Software Ecosystems. This basic premise underpins the COSMOS proposal which focuses on blending best practices DevOps solutions with the development processes used in the CPS context: this will enable the CPS world to deliver software more rapidly and result in more secure and trustworthy systems. COSMOS brings together a balanced consortium of big industry, SMEs and academics which will develop enhanced DevOps pipelines which target development of CPS software. The COSMOS CPS pipelines will be validated against 5 use cases provided by industrial partners representing healthcare, avionics, automotive, utility and railway sectors. These will act as reference use cases when promoting the technology amongst Open Source and standardization communities. For the former a specific community building activity will be performed to stimulate engagement with Open Source; for the latter, the standards experience of the coordinator and partners will be employed to promote COSMOS technologies within heavily regulated sectors where there is an increasing need for well-defined software V&V solutions. **Total H2020 project 5MIL EUR, Sebastiano Panichella got direct funding for 770,000 EUR**
- Sebastiano Panichella was partially funded with Gabriele Bavota, Gerardo Canfora, Massimiliano Di Penta, in the EU FP7-ICT-2011-8 project Markos, contract no. 317743. Specifically, the MARKOS project aimed to realize the prototype of a service and an interactive application providing an integrated view on the Open Source projects available the on web, focusing on functional, structural and licenses aspects of software code.

Innosuisse projects

- Sebastiano Panichella wrote an Innosuisse project proposal (as main research responsible) to the Innosuisse grant program, ARIES: Exploiting User Journeys for Supporting Mobility as a Service Platforms (project Nr. 45548.1 IP-ICT). ARIES brings together a consortium of two partners: the start-up BOND (https://bond.info/en/) and the ZHAW. ARIES project will deliver a user-oriented self-adaptive software platform that implements requirements and testing engineering mechanisms to enhance customer experience. ARIES project will be realized in the context of BOND, a Swiss e-bike sharing start-up.
  Total project funding: Sebastiano Panichella got direct funding for around **500,000 CHF**

Ack: We personally thank the team of bond for the very productive and constant research meetings.

SNF projects

- Sebastiano Panichella obtained funding (as co-applicant) for the SURF-MobileAppsData SNF (No. 200021−166275) project. The goal of the SURF-MobileAppsData project is mining mobile apps data available in app stores to support software engineers in better supporting maintenance and evolution activities for these apps (**Total SNSF (CHF) 349,926**).
  See page: http://www.ifi.uzh.ch/en/seal/people/panichella/SNF-Projects.html

Supervision (or Co-Supervised) of junior researchers at graduate and postgraduate level::
(Updated information on advised students can be found: https://spanichella.github.io/#teaching)

Muhammad Ilyas Azeem, PhD student at Laboratory for Internet Software Technologies.
Paper accepted *at ICSSP 2020.*

Carol V. Alexandru, PhD student at University of Zurich.
Papers accepted *at GECCO 2016, FSE 2016, SANER 2017, ICPC 2017.*

Giovanni Grano, PhD student at University of Zurich.
Papers accepted *at WAMA 2017, SANER 2018, MaLTeSQuE 2018, JSEP 2019, TSE 2020, JSEP 2020.*

Adelina Ciurumelea, PhD student at University of Zurich.
Papers accepted *at ICSE 2017, SANER 2017.*

Carmine Vassallo, PhD student at University of Zurich.
Papers accepted *at ICSME 2017, SANER 2018, 2 EMSE 2019 and 2020.*

Gerald Schermann, PhD student at University of Zurich.
Paper accepted *at ICPC 2015.*

Andrea Di Sorbo, PhD student at University of Sannio.
Papers accepted *at ICSME 2015, ASE 2015, ICSE 2016, FSE 2016.*

Master Students Supervised:

- **Bill Bosshard, Master student at UZH**.
- **Atif Ghulam, Master student at UZH**.
- **Rafael Kallis, Master student at UZH**.
- **Timofey Titov, Master student at UZH**. **Paper accepted at MaLTeSQuE 2018**.
- **Alessandro Rigamonti, Master student at UZH**.
- **Carmine Vassallo, Master student at University of Sannio**. *Paper accepted at ICPC 2014.*
- **Te Tan, master student at UZH**. *Advised on a Work master project related to App Store Mining..*
- **Simon Taennler, master student at UZH**.

Bachelor Students Supervised:

- **Farul Acibal, bachelor student at UZH**.
- **Nik Zaugg, bachelor student at UZH**. *Paper accepted at EMSE 2020.*
- **Ivan Taraca, bachelor student at UZH**.
- **Gulshan Kundra, master student at LUT, Finland, 2018**.
- **Alexander Hofmann, UZH**. - **Antonio Galluccio, Bachelor student at UZH**.
- **Lucas Pelloni, Bachelor student at UZH**. **Paper accepted at SANER 2018**.
- **Andreas Schaufelbhl, Bachelor student at UZH**. **Paper accepted at SANER 2017**.
- **Stefano Giannantonio, Bachelor student at University of Molise**.

Awards

Award as Reviewer: Distinguished Reviewer Award SATToSE 2017 and SANER 2018.
Best paper award: ICPC 2011, MaLTeSQuE 2018.
Best tool award: ICPC 2014, SANER 2018.

Nominations for Best Paper: ICSSP 2020, (2) SANER 2018, SANER 2017, ICSME 2014, ICPC 2014, ICSM 2013, ICST 2013.

Memberships in panels, boards, and individual scientific reviewing activities

Keynote Speaker of International Conferences and co-located events:

- Speaker at the Workshop on Validation, Analysis and Evolution of Software Tests - VST 2018 (http://vst2018.scch.at/#program)

Editor of special Issues at International Journals:

- Editor of a the special Issue at Science of Computer Programming Journal (Elsevier) entitled 'Software Engineering Automation: A Natural Language Perspective', 2020
- Editor of a the special Issue at EMSE entitled 'Software Engineering for Mobile Applications', July 2018.
- Editor of a the special Issue at IST entitled 'User Feedback and Software Quality in the Mobile Domain', June 2018.

Organising research workshops:

- *Co-organizer of the CHOOSE-forum 2017 (http://www.choose.s-i.ch/events/forum2017/index.html)*

Organising committee member of International Conferences:

- *Program Committee member* of WAISE 2020, MaLTeSQuE 2020, SSBSE 2020, ICPC 2020, ICST 2020 and 2021, MSR 2020, SANER 2021, 2020, SBST 2020, SANER 2019, SBST 2018, MSR 2018, SANER 2018, ICSE SRC 2018, ASE 2017, ICSME Tool Demo Track 2017, SANER ERA TRACK 2017, ICPC ERA TRACK 2017, SEAA 2017, SATToSE 2017, ICSE 2016, MSR 2016 - Mining Challenge, ICPC 2016, SEAA2016, SEAA2015, ICPC 2015, ICPC 2014.

Session Chair of International Conferences:

- *of the 24th IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER 2017), Austria.*

Web Chair

- *21st International Conference on Program Comprehension (ICPC 2013)*, San Francisco, California, USA.

Editorial Board Member of International Journals:

- *Journal of Software: evolution and process.*

Reviewer for the following International Journals:

- *Empirical Software Engineering - Transactions on Software Engineering - Transactions on Software Engineering and Methodology - Journal of Systems and Software - Information and Software Technology - Journal of Software: Evolution and Process - Science of Computer Programming - Journal of Computer Science and Technology - Communications of the ACM - Software Testing, Verification and Reliability*

Internships

- *May-July 2013 was visiting researcher at the Ecole Polytechnique de Montrèal, Canada. Supervisor: Prof. Giuliano Antoniol*

External Reviewer of Grant Applications

- *External Reviewer of projects submitted in the Quebec-Flanders bilateral research cooperation program*

Research Meetings

- *Sebastiano Panichella was invited by the National Institute of Informatics (NII), Japan, to participate in NII Shonan Meeting entitled "Mobile App Store Analytics" (Japan).*
- *Sebastiano Panichella was invited by the Adesso company, Switzerland, to participate in "Adesso Quartalsmeeting" 2016 (Zurich).*

Major scientific achievements

His research is funded by one Swiss National Science Foundation Grants. He is author or co-author of over sixty (considering also demos, datasets and poster) papers appeared in International Conferences and Journals. These research works involved studies with industrial and open projects and received best paper awards or best paper nominations (see his main collaborators at the following link: https://spanichella.github.io/#bio). He supervised (or co-supervised) 9 undergrad students, 7 MSc students and currently/recently 7 PhD students. He serves and has served as a program committee member of various international conference (e.g., ICSE, ASE, FSE, ICSME, etc.). For reason of space, his contributions in the above works are described in the research output list. Dr. Panichella was selected as one of the top-20 (second in Switzerland) Most Active Early Stage Researchers (results reported by the JSS journal) Worldwide in SE. He is Editorial Board Member of Journal of Software: evolution and process (JSEP). He is also Review Board member of the EMSE and TOSEM journals. He was chair of the First International Workshop Cloud-Native Applications Design and Experience (co-located with UCC and BDCAT): cnax.servicelaboratory.ch. See the blogpost dedicated to the event: https://bit.ly/2tNtEhk

Recent Achievements of Sebastiano Panichella:

- According to the [Results reported by the JSS journal] Sebastiano Panichella was selected, according to the results reported by the JSS journal [1], as one of the **top-20 (second in Switzerland) Most Active Early Stage Researchers in Software Engineering (SE)**. We take this opportunity to thank the SNF for supporting the research in SE and mobile computing with the project SURF-MobileAppsData SNF project.
- The paper [Sebastiano Panichella, Andrea Di Sorbo, Emitza Guzman, Corrado Aaron Visaggio, Gerardo Canfora, Harald C. Gall: How can I improve my app? Classifying user reviews for software maintenance and evolution. ICSME 2015: 281-290], which originated the idea behind this SNF project, is one of the **most cited papers of ICMSE 2015** (as reported in Google scholar), with over 260 citations in around 4-5 years.
- The research proposal submitted to the H2020 grant called COSMOS: DevOps for Complex Cyber-physical Systems was recently selected for funding.
- The paper ICPC wrote during the bachelor studies of Dr. Panichella-[Giovanni Capobianco, Andrea De Lucia, Rocco Oliveto, Annibale Panichella, Sebastiano Panichella: On the role of the nouns in IR-based traceability recovery. ICPC 2009: 148-157] is **among the most influential papers of ICPC in the last decade [period 2009-2019]**.

First SNF grant & Other Funding Activities. During the postdoctoral experience, Sebastiano wrote and got accepted a first paper, that nowadays, has over 260 citations, which makes this paper, one of the most cited at the ICSME (RANK A) conference in 2015. On top of the idea behind this work, Sebastiano wrote (100% of) a proposal that was awarded (Sebastiano figured as co-applicant with Prof. Gall) by the Swiss National Science Foundation, i.e., the project SURF-MobileAppsData SNF - No. 200021-166275- (current results of the projects are available on-line5), which is funding his research collaboration with the UZH (since 2016), on mobile computing and mobile testing, and two PhD Students.

New research topics introduced during the SNF grant. During the last years he investigated further topics in SE and CC research fields. Specifically, after the PhD, He published further (28) papers and established the basis of new research lines, not present and the UZH at the time, which are strongly related to the goals of this proposal. Among them, we can mention for example, research work on mobile computing (ICSE 2016, ICSE 2017, FSE 2016, etc.), automated testing (ICSE 2017, SANER 2018, JSEP, MaLTeSQuE 2018), advanced software maintenance and evolution problems where He successfully adopted Summarization Techniques, Machine Learning and Genetic Algorithms (e.g., ICSME 2015, ASE 2015, GECCO 2016). For instance, in the field of automated testing, he proposed the first work (ICSE 2016) that demonstrates that test case summaries have an high potential to

[1] https://bit.ly/2DbpQgJ

boost developers productivity during bug fixing tasks. Such preliminarily results open the roads to the research ideas discussed in this project proposal.

His ambition as researcher is help students evolving research topics that are relevant also in industry, developing research prototypes and tools that will inspire state-or-practice in industrial environments. Developing research prototypes and tools that are used in practice by practitioners represents an important step toward this goal. As consequence, several tools, research prototypes (e.g., YODA, SURF, DECA, ARdoc), and datasets were produced in the last years, and are available in his home page 6. Hence, his research involved relevant industrial companies (e.g., ING Netherland, Sony Mobile Communication) and their extensions and my future work will involve further industrial (e.g., Siemens, GMV, etc.) and research partners (as reported in the proposal) and open source projects[2].

RESEARCH PARTNERS & COLLABORATIONS established in the last years:
(collaborations summarized at https://spanichella.github.io/#bio)

Established Research partners interested to collaborate to projects and proposals with Dr. Panichella: Paolo Tonella (University of Lugano) University of Luxembourg, Dr. Bianculli and Dr. Pastore (Testing, Requirement engineering, and formal verification); (RT1- 3) Simula, Department of Engineering, Dr. Shaukat (Cyber-Physical Systems of Systems); (RT2) Delft University of Technology, Dr. Zaidman (automated testing); (RT1) Tampere University of Technology, Prof. Davide Taibi (DevOps, cloud computing); Prof. Robles (Mining Software Repositories techniques). With most of the aforementioned (excluding Prof. Robles, that recently published with us a paper at Onward 2018) partners we submitted strategic EU proposals during 2019, to sustain the research goals of this SNF proposal and our collaborations.

Collaborations with the industrial partners (via the involvement in research papers, projects and proposals):
- Atos - (Autonomous vehicles) Spain 2020-02-Today
- BOND Switzerland 2019-10-Today
- Helio Switzerland 2019-10-Today
- Siemens AG and Siemens Healthcare GmbH Germany 2019-05-Today
- Intelligentia S.r.l. Italy 2020-01-Today
- AICAS GmbH Germany 2020-01-Today
- Q-media s.r.o. Czech Republic 2020-01-Today
- Unparallel Innovation LDA Portugal 2019-01-Today
- The Open Group (Scott Hansen) Belgium 2019-01-Today
- GMV https://www.gmv.com Spain 2019-01-Today
- https://www.intelligentia.eu (Italy); 2019-01-Today
- SOHEILA DEHGHANZADEH https://www.denso.com/de/en/innovation/ 2019-01-Today
- Haidar Osman (Senior Data Scientist - Swisscom, Switzerland); 2018-Today - Red Hat Switzerland 2018-Today
- https://vshn.ch/en/ Switzerland 2018-Today
- https://ikubinfo.al/ Austria 2018-Today
- Daniele Romano (ING Netherland); 2017-Today
- Junji Shimagaki (Sony Mobile Communications); 2016-Today

Established Internal ZHAW collaborations with the Robotics lab & Exploitation Plans:
Dr. Panichella plans to exploit tools and technologies developed in his research projects, involving industrial organizations in Switzerland (e.g., Red Hat), including companies in which CPS are critical for their business. Dr. Panichella disseminate his projects results within software engineering, cloud computing, and robotics courses at the Bachelor/Master level, thus fostering technological transfer to future employees of enterprises in the territory. Finally, Dr. Panichella is committed to establish the open source tools developed within his projects, to promote the evolution of CPS ecosystems.

TEACHING (UZH and ZHAW) activities & Achievements:

University of Zurich: - Lecturer and co-lecturer for the Software Maintenance and Evolution course in 2014, 2015, 2016, 2017, 2018, 2019, 2020

Learning Goals: During the course Sebastiano teach to the students the foundations of software evolution and maintenance, by integrating recent research in both cloud computing and software engineering fields, thus transferring to students also this recent research outputs (in form of papers, datasets, tools and prototypes). This includes successful aged (i.e. legacy software) or cloud-based software systems, object-oriented reengineering, refactoring, change patterns, empirical analysis of software, classification/prediction models, software quality analysis.

Zurich University of Applied Science:
- Cloud Computing course - CCP2 2020
- INF-Prog1 2020
- Co-lecturer for the CAS Information Engineering in 2018, 2019, 2020

Learning Goals: The main features of the Python program language.
- Lab Instructor for the Programming course in Java in 2018, 2019, 2020

Learning Goals: The main features of the Java program language.

University of Sannio:
- *Lab Instructor* (December 2013) for the Programming Techniques course of Professor Gerardo Canfora

Learning Goals: The Languages and Grammars, JavaCC parser.
- *Teaching Assistant* for the Software Engineering course of Prof. Massimiliano Di Penta:

[2] https://spanichella.github.io/#bio

Learning Goals: Recovering Traceability Links via Information Retrieval Methods

Teaching Achievements. Dr. Panichella received positive lectures grades, improving them over the time, as commented by some students following his course at the UZH: - *"Dear Sebastiano, Thank you for the mail [...] I really appreciate that you were so supportive during my project ... I am super happy with the result, as it is actually a working system that I can use even outside of the mostly virtual space of a typical UZH project...". - "Sebastiano promote during the course critical thinking on the teached research topics ....".*

DATASET & TOOLS:
A comprehensive and updated list of shared datasets/tools to the research community by Sebastiano is available at https://spanichella.github.io/tools.html.