

- Web services quality modeling

Research Assistant

April 2008 to January 2009

- Common Criteria security certification process

Undergraduate Researcher

Summer 2006

- Development of ProM (ProMetrics), a set of tools to collect, integrate, visualize, and analyze the software development process with the aim to be as non-invasive as possible
- Integration of cross domain platforms

INDUSTRIAL
EXPERIENCE

An experienced software engineer with a great passion for designing and developing innovative applications and prototypes. Skilled in different technologies to implement reliable systems that meet industrial standards.

Blockchain & local industry, Bolzano, Italy

January 2018 - present

- Development of show cases for the local industry
 - Blockchain for IoT devices management using hyperledger fabric blockchain platform.
 - Blockchain for data and objects provenance using Ethereum blockchain and smart contracts.

Innovation Discovery, Bolzano, Italy

January 2017 - January 2019

- The company develops and delivers consulting solutions to start-ups, companies, and professionals regarding innovative technologies and applications.
 - Provide cloud deployment support (AWS deployment).
 - Design a crawler for runtime data collection.
 - Perform security analysis and penetration testing for the platform.

Center for Applied Software Engineering, Bolzano, Italy

January 2014 - June 2014

- As part of our collaboration with the IT department of the Italian parliament, I participated in designing and developing a scalable authentication infrastructure. My primary task consisted in developing a proof of concept based on SAML 2.0 to support the integration of different applications such as JBoss, Alfresco and Zimbra.
 - Develop a single sign on PoC based to integrate NetIQ e Alfresco using SAML 2.0.
 - Extend the PoC to support Zimbra.

January 2013 - December 2013

- As part of a collaboration with the Italian army, I participated in designing and building a data collection and analysis platform that allows our research group to apply different process mining and data analysis techniques. The goal of the project was the improvement of working processes based on the collected data. I was one of the lead developers in the project where I had the following responsibilities:
 - Supervise a team of developers, manage weekly meetings to discuss ideas and track changes.

- Develop and test parts of the project.
- Organise monthly meeting with representatives from the army and report the current developments status.
- Implement the security policies and perform security testing.

October 2012 - December 2013

- Participated in the development of ProM (ProMetrics) a set of tools to collect, integrate, visualise, and analyse the software development process with the aim to be as non-invasive as possible. The experiments were performed in collaboration with different companies, mainly Nokia and Ferrari
 - Add support for macOS to collect developers interaction with different tools (IDEs, bug reports).
 - Integrate Visual Source Safe server to extract bug tracking issues.

Opera 21, Bolzano, Italy

January 2012 - August 2012

- In the context of web services testing. I have developed a set of PoCs that address specific requirements of the local industry
 - Implement testing tools for Opera 21 Web Services.
 - Testing and assessing the quality of Opera 21 Web Services.

NEXOF, Bolzano, Italy

2009 - 2010

- As part of a European project, we collaborated with different European companies to develop a reference architecture for SOA based systems
 - I developed a prototype of a monitoring framework that enables runtime data collection to automatically identify anomalous events, aggregates related events and presents data to the interested parties with different levels of granularities.

Magicall, Bolzano, Italy

July 2007 to October 2007

- Designed and Developed a Web Application for Call center management.
- Designed and Developed tools to extract and manipulate Call center data.

PROFESSIONAL
ACTIVITIES

Evaluator

- Research projects proposals at the Croatian Science Foundation (HRZZ)

General Chair

- 1st International Workshop on Edge Migration and Architecture (Edgeways 2020).
- SOFSEM Students Research Forum (SRF 2021).

Track Chair

- IEEE CLOUD 2021, Cloud Operations Management Track.
- Euromicro Conference on Software Engineering and Advanced Applications, Cloud Native And Dev Ops Track (SEAA 2021).

Publicity Chair

- 10th EAI International Conference on Cloud Computing (CloudComp 2020).
- The Fifth International Conference on Fog and Mobile Edge Computing (FMEC 2020).
- Cloud and Trusted Computing 2018 (C&TC 2017/18/19).
- 12th WISTP International Conference on Information Security Theory and Practice (WISTP 2018).

Local Arrangements Chair

- 47th International Conference on Current Trends in Theory and Practice of Computer Science (sofsem 2021).

Web Chair

- The 2nd International Conference on Performance Systems and Methodologies in Software Engineering for the Military (SEDA 2013).

Proceeding Chair

- The 9th International Conference on Open Source Systems (OSS2013).

Program Operational Committee

- IEEE World Congress on Services, July 8-13 ()Milan 2019, Italy).

Editorial board member

- Guest editor, Future Internet, Special Issue “Fog and Mobile Edge Computing” (2021).
- Guest editor, Computers, Special Issue “Cloud Computing Security and Blockchain Technology” (2021).
- International Editorial Advisory Board of the Global Book “FinTech as a Disruptive Technology for Financial Institutions”, published by IGI Global.

Invited Speaker

- Digital Transformation Training, Blockchain (2020, Cortina).
- SFSCon - Free Software Conference Bozen (November, 2019, Italy).
- The 6th Crati Valley Workshop on Blockchain 2018 (Calabria, Italy).

Reviewer/PC member of the following international conferences and journals

- The International Conference on Cloud Computing and Services Science (2018/19/20).
- Cloud and Trusted Computing 2018 (C&TC 2017/18/19).
- The IEEE International Conference on Cloud Computing (CLOUD 2018/19/20).
- The IEEE International Conference on Edge computing (EDGE 2019).
- IEEE International Congress on Big Data (BigData Congress 2019).
- IEEE 17th Annual Consumer Communications & Networking Conference.

- The International Conference on Advances in Future Internet, 2017/2018.
- IEEE Global Communications Conference (GLOBECOM) 2016/2017.
- Australasian Conference on Information Security and Privacy 2016.
- Mobile Information Systems Journal.
- International Symposium on Security in Computing and Communications (SSCC'16).
- IEEE Transactions on Services Computing (TSC).
- IEEE Transactions on Cloud Computing (TCC).
- International Conference on Information and Communication Technology Research (ICTRC2015).

TEACHING

Free University of Bolzano/Bozen, Bolzano, Italy

Lecturer

- Mobile System Engineering, Master Computer Science (A.Y. 14/15, 15/16, 16/17)
- Technology Assessment, Bachelor in Computer Science (A.Y. 13/14)
- Internet and Mobile Services, Bachelor in Computer Science (A.Y. 14/15, 15/16)
- Cloud Computing and Distributed Systems, Master Computer Science (A.Y. 19/20, 20/21, 21/22)

Teaching Assistant

- Data Structures and Algorithms, Bachelor in Computer Science (A.Y. 20/21)
- Operating systems, Bachelor in Computer Science (A.Y. 11/12)
- Advanced Internet Technologies, Bachelor in Computer Science (A.Y. 12/13, 13/14)
- Internet and Mobile Services, Bachelor in Computer Science (A.Y. 13/14)
- Software Engineering, Bachelor in Computer Science (A.Y. 16/17, 17/18, 18/19)
- Empirical Software Engineering Research, Master Computer Science (A.Y. 16/17, 17/18)
- Mobile System Engineering, Master Computer Science (A.Y. 14/15, 15/16, 16/17, 17/18)
- Information Security, Bachelor in Computer Science (A.Y. 18/19, 19/20)
- Cloud Computing and Distributed Systems, Master Computer Science (A.Y. 19/20, 20/21, 21/22)
- Software Project Management, Bachelor in Business Informatics (A.Y. 21/22)

TUTORING ACTIVITIES

My tutoring activities consisted in the supervision of the following bachelor and master students thesis and internships:

OTHER ACADEMIC RESPONSIBILITIES

- Member of the advisory board of the PhD program in Namibia University of science and technology
- Member of the PhD in Advanced-Systems Engineering committee.
- Responsible for the collaboration with the SMACT competence center.
- Head of the Working Group on System Security courses
- Academic advisor for Software engineering and European Master in Software engineering students (A.Y. 13/14, 19/20, 20/21).
- Organizing and Teaching MobileDev 2012, MobileDev 2014, MobileDev 2015: summer school for high school students on computational thinking and mobile development, (Bolzano, 1 week in September - 30 hours, Free University of Bozen-Bolzano).
- Supervision of several high school students during their stages at the Faculty of Computer Science, Free University of Bozen-Bolzano.
- Supervision of several Bachelor and Master Thesis projects.
- Supervision of one PhD candidate.

VISIT IN
INTERNATIONAL
RESEARCH
CENTERS AND
PARTICIPATION IN
INTERNATIONAL
SCHOOLS

- Research visit, Etisalat BT Innovation Centre (EBTIC), Khalifa University, Abu Dhabi, UAE [February 2014]. Focus on Cloud services adaptation and security certification in collaboration with Prof. Claudio Ardagna and Prof. Rasool Asal.
- Laser summer school on software engineering (Software Testing: The practice And The science), Elba, Italy. (September 6-12, 2009).
- CASE summer school on Applied Software engineering, Bolzano, Italy. (July 6-10, 2009).
- The Service and Software Architectures, Infrastructures and Engineering (SSAIE) summer school, Heraklion, Greece. (June 15-20, 2009).

HONOURS AND
AWARDS

- I. Fronza, N. El Ioini, L. Corral, M. Moroder, M. Moroder, “Monitoring Multicopters Energy Consumption”. In Proceedings of the 6th Annual Conference on Research in Information Technology (RIIT 2017), ACM, pp. 29-34, 2017. (BEST PAPER AWARD)
- L. Corral, I. Fronza, N. El Ioini, A. Janes, and, P. Plant, “An Android Kernel Extension to Save Energy Resources without Impacting User Experience”. In Proceedings of the 13th International Conference on Mobile Web and Intelligent Information Systems (MobiWIS’16, 22-24 August 2016, Vienna, Austria), 2016. (BEST PAPER AWARD)

PROJECTS

- Blockchain based Edge Computing Assurance - BECA, (2019 - ongoing), funded by the Free University of Bozen-Bolzano (€ 6000). Principal Investigator.
- 5G for Connected and Automated Road Mobility in the European Union – 5G-CARMEN, (2018 - ongoing), funded by the H2020-ICT-2018-2020 (UNBZ unit € 127500), Team member.
- COmbining COmputational thiNking didAcTics and Software engineering in K-12 (2017-ongoing), funded by the Free University of Bozen-Bolzano (€ 162000). Team member.
- Computational Thinking Assisted Language Learning - ctALL (2016-2017), funded by the Free University of Bozen-Bolzano (€ 7800.00). Co-Investigator.
- Green software for drone energy consumption optimization - green4drones (2016-2017), funded by the Free University of Bozen-Bolzano (€ 8595.80). Co-Investigator.
- Embedded Software QUALity - ESQUA (2014 - 2016), funded by the Free University of Bozen-Bolzano (€ 6662.90). Team member.
- FUNctional and Non-functional properties of Virtual Machines - FUN-VM (2014 - 2016), funded by the Free University of Bozen-Bolzano (€ 4378.90). Team member.
- QUALity of Mobile apps - QUAM (2013 - 2014), funded by the Free University of Bozen-Bolzano (€ 6324.30). Team member.
- Open Source processes for SMEs - OSP (2010 - 2011), funded by the Free University of Bozen-Bolzano (€ 22974). Team member.
- Software Development support with Open Source tools - SDOS (2010 - 2011), funded by the Free University of Bozen-Bolzano (€ 21732.5). Team member.
- Web Service Certification - WSC (2010 - 2011), funded by the Free University of Bozen-Bolzano (24976.10). Team member.
- Software Process Improvement for SMEs - SPISME (2009 - 2011), funded by the Free University of Bozen-Bolzano (€ 19302). Team member.
- NESSI Open Service Framework - NEXOF (2009 - 2010), A European project. Team member.

PUBLICATIONS

Journals

- C. Ardagna, R. Asal, E. Damiani, N. El Ioini, M. Elahi, & C. Pahl, From Trustworthy Data to Trustworthy IoT: A Data Collection Methodology Based on Blockchain. *ACM Transactions on Cyber-Physical Systems*, 5(1), 1-26, (2020).
- M. Nardini, S. Helmer, N. El Ioini, C. Pahl. A Blockchain-based Decentralized Electronic Marketplace for Computing Resources. *SN COMPUT. SCI.* 1, 251 (2020).
- C. Pahl, N. El Ioini, S. Helmer, & B. Lee: "A semantic pattern for trusted orchestration in IoT edge clouds". *Internet Technology Letters*, (2019).
- C. Ardagna, R. Asal, E. Damiani, T. Dimitrakos, N. El Ioini, N., & C. Pahl: "Certification-Based Cloud Adaptation". *IEEE Transactions on Services Computing*. (2018).
- M. Anisetti, A. Ardagna, E. Damiani, N. El Ioini, & F. Gaudenzi: "Modeling time, probability, and configuration constraints for continuous cloud service certification". *Computers & Security*, 72, 234-254. (2018).
- I. Fronza, N. El Ioini, L. Corral: "Teaching Computational Thinking Using Agile Software Engineering Methods: A Framework for Middle Schools". *TOCE* 17(4): 19:1-19:28 (2017).
- L. Corral, I. Fronza, and N. El Ioini: "The Future of Energy-Aware Software: The Case of Drones". *Cutter IT Journal*, vol. 28, no. 8, pp. 19-23. (2015).
- I. Fronza, N. El Ioini, A. Janes, A. Sillitti, G. Succi, and L.R. Corral Velazquez: "Se dovessi dare un voto a questo laboratorio, darei nove Introduzione del Computational Thinking nella scuola secondaria di primo grado: risultati dell'esperienza", *Mondo Digitale*, vol. 13, no. 51, pp. 757-765, June (2014).

Conferences

- M. Pomalo, V. T. Le, N. El Ioini, C. Pahl and H. R. Barzegar, "A Data Generator for Cloud-Edge Vehicle Communication in Multi Domain Cellular Networks," 2020 7th International Conference on Internet of Things: Systems, Management and Security (IOTSMS), Paris, France, (2020).
- M. Pomalo, V. T. Le, N. El Ioini, C. Pahl and H. R. Barzegar, "Service Migration in Multi-domain Cellular Networks based on Machine Learning Approaches," 2020 7th International Conference on Internet of Things: Systems, Management and Security (IOTSMS), Paris, France, (2020).
- M. Elahi, N. El Ioini, A. A. Lambrich, and M. Ge. Exploring Personalized University Ranking and Recommendation. In Adjunct Publication of the 28th ACM Conference on User Modeling, Adaptation and Personalization (UMAP '20 Adjunct). Association for Computing Machinery, New York, NY, USA, 6–10, (2020).
- A. El Majjodi, M. Elahi, N. El Ioini, and C. Trattner. Towards Generating Personalized Country Recommendation. In Adjunct Publication of the 28th ACM Conference on User Modeling, Adaptation and Personalization (UMAP '20 Adjunct). Association for Computing Machinery, New York, NY, USA, 71–76, (2020).
- H. R. Barzegar, V. T. Le, N. E. Ioini and C. Pahl, "Service Continuity for CCAM Platform in 5G-CARMEN," 2020 International Wireless Communications and Mobile Computing (IWCMC), Limassol, Cyprus, 2020, pp. 1764-1769, (2020).
- H. R. Barzegar, N. E. Ioini, V. T. Le and C. Pahl, "Wireless Network Evolution Towards Service Continuity in 5G enabled Mobile Edge Computing," 2020 Fifth International Conference on Fog and Mobile Edge Computing (FMEC), Paris, France, 2020, pp. 78-85, (2020).
- V. Le, N, El Ioini, H, Barzegar, and C. Pahl, A Multi-domain Network Simulator based on NS-3. In Proceedings of the 10th International Conference on Simulation and Modeling Methodologies, Technologies and Applications - Volume 1: SIMUL-

- TECH, pages 217-224, (2020).
- N. El Ioini, D. Hästbacka, D. Pahl, & D. Taibi, Platforms for Serverless at Edge: A Review. In 1st Int. Workshop on Edge Migration and Architecture (EdgeWays 2020).
 - T. Davide, N. El Ioini, C. Pahl, and J.R.S. Niederkofler. "Patterns for Serverless Functions (Function-as-a-Service): A Multivocal Literature Review." In CLOSER, pp. 181-192. (2020).
 - F. Gand, I. Fronza, N. El Ioini, H.R. Barzegar, & C. Pahl, Serverless Container Cluster Management for Lightweight Edge Clouds. In CLOSER (pp. 302-311), (2020).
 - F. Gand, I. Fronza, N. El Ioini, H.R. Barzegar, L.V. Thanh & C. Pahl, A Lightweight Virtualisation Platform for Cooperative, Connected and Automated Mobility. In VEHITS (pp. 211-220), (2020).
 - F. Gand, I. Fronza, N. El Ioini, H.R. Barzegar, S. Azimi & C. Pahl, A Fuzzy Controller for Self-adaptive Lightweight Edge Container Orchestration. In CLOSER (pp. 79-90), (2020).
 - A. Samir, N. El Ioini, I. Fronza, H.R. Barzegar, L.V. Thanh & C. Pahl, Anomaly detection and analysis for reliability management clustered container architectures. *Cloud Computing*, 12(3&4), 247-264, (2020).
 - C.A. Ardagna, R. Asal, E. Damiani, N. El Ioini & C. Pahl: "Trustworthy IoT: An Evidence Collection Approach Based on Smart Contracts". In 2019 IEEE International Conference on Services Computing (SCC) (pp. 46-50). IEEE, (2019).
 - G. D'Atri, L. Van Thanh, C. Pahl. & N. El Ioini, "Towards Trustworthy Financial Reports Using Blockchain". In the Tenth International Conference on Cloud Computing, GRIDs, and Virtualization, 47, (2019).
 - C. Pahl, I. Fronza, N. El Ioini, and H. Barzegar. "A Review of Architectural Principles and Patterns for Distributed Mobile Information Systems", in the Proceedings of the 15th International Conference on Web Information Systems and Technologies - WEBIST, Vienna, Austria, (2019).
 - R. Scolati, I. Fronza, N. El Ioini, A. Samir, & C. Pahl: "A Containerized Big Data Streaming Architecture for Edge Cloud Computing on Clustered Single-Board Devices", in the ninth international conference on cloud computing and services science, (2019).
 - N. El Ioini, & C. Pahl: "A review of distributed ledger technologies". In OTM Confederated International Conferences On the Move to Meaningful Internet Systems (pp. 277-288). Springer, Cham, (2018, October).
 - N. EL Ioini, C. Pahl: "Trustworthy Orchestration of Container Based Edge Computing Using Permissioned Blockchain". In Proceedings of the the Fifth International Conference on Internet of Things: Systems, Management and Security. (2018)
 - S. Helmer, N. EL Ioini, M. Roggia and C. Pahl: "EthernityDB - Integrating Database Functionality into a Blockchain". In Proceedings of the 22nd European Conference on Advances in Databases and Information Systems. (2018)
 - C. Pahl, N. EL Ioini and S. Helmer: "An Architecture Pattern for Trusted Orchestration in IoT Edge Clouds". In Proceedings of the The 3rd IEEE International Conference on Fog and Mobile Edge Computing. (2018)
 - C. Pahl, N. EL Ioini and S. Helmer: "A Decision Framework for Blockchain Platforms for IoT and Edge Computing". In Proceedings of the 3rd International Conference on Internet of Things, Big Data and Security - Volume 1: IoTBDS, ISBN 978-989-758-296-7, pages 105-113. (2018)
 - D. von Leon, L. Miori, J. Sanin , N. El Ioini, S. Helmer and C. Pahl: "A Performance Exploration of Architectural Options for a Middleware for Decentralised Lightweight Edge Cloud Architectures". In Proceedings of the 3rd International Conference on Internet of Things, Big Data and Security - Volume 1: IoTBDS, ISBN 978-989-758-296-7, pages 73-84. (2018)

- I. Fronza, N. El Ioini, L. Corral: “Leveraging Robot Programming to Foster Computational Thinking”. CSEDU (2) 2017: 109-116
- C. Ardagna, R. Asal, E. Damiani, N. El Ioini, C. Pahl, T. Dimitrakos: “A Certification Technique for Cloud Security Adaptation”. SCC 2016: 324-331
- L. Corral, I. Fronza, N. El Ioini: “The Incorporation of Drones as Object of Study in Energy-aware Software Engineering”. ICEIS (2) 2017: 721-726
- H. Arabnejad, P. Jamshidi, G. Estrada, N. El Ioini, C. Pahl: “An Auto-Scaling Cloud Controller Using Fuzzy Q-Learning - Implementation in OpenStack”. ESOC 2016: 152-167
- L. Corral, I. Fronza, N. El Ioini, A. Janes, P. Plant: “Preserving energy resources using an Android kernel extension: a case study”. MOBILESoft 2016: 23-24
- I. Fronza, N. El Ioini, L. Corral: “Blending mobile programming and liberal education in a social-economic high school”. MOBILESoft 2016: 123-126
- L. Corral, I. Fronza, N. El Ioini, A. Janes, P. Plant: “An Android Kernel Extension to Save Energy Resources Without Impacting User Experience”. MobiWIS 2016: 3-17
- I. Fronza, N. El Ioini, L. Corral: “Computational Thinking Through Mobile Programming - A Case Study in a Liberal Education Context”. MobiWIS 2016: 67-80
- L. Corral, I. Fronza, N. El Ioini, A. Ibershimi: “A Measurement Tool to Track Drones Battery Consumption During Flights”. MobiWIS 2016: 334-344
- I. Fronza, L. Corral, N. El Ioini, A. Ibershimi: “Towards Optimization of Energy Consumption of Drones with Software-Based Flight Analysis”. SEKE 2016: 543-546
- I. Fronza, N. El Ioini, L. Corral: “Teaching Software Design Engineering Across the K-12 Curriculum: Using Visual Thinking and Computational Thinking”. SIGITE/RIIT 2016: 97-101
- N. El Ioini: “Specifications for Web Services Testing: A Systematic Review”, SERVICES 2015, New York City, NY, USA, 152-159, 2015
- I. Fronza, N. El Ioini, and L. Corral: “Students Want to Create Apps: Leveraging Computational Thinking to Teach Mobile Software Development”. Proceedings of the 16th Annual Conference on Information Technology Education (SIGITE 2015), Chicago, Illinois, September 30 - October 3, pp. 21-26, 2015
- N. El Ioini, A. Garibbo, A. Sillitti, G. Succi: “An Open Source Monitoring Framework for Enterprise SOA”. OSS 2013
- N. El Ioini, A. Sillitti, G. Succi: “Using Rules for Web Service Client Side Testing”. SERVICES 2013
- E. Petrinja, G. Succi, N. El Ioini, A. Sillitti: “Open Source Software: Quality Verification - 9th IFIP WG 2.13 International Conference”, OSS 2013, Koper-Capodistria, Slovenia, June 25-28, 2013. Proceedings. IFIP Advances in Information and Communication Technology 404, Springer 2013
- Nabil El Ioini: “Web Services Open Test Suites”. IEEE SERVICES 2011: 77-80. - implementation of a tool for testing web services.
- N. El Ioini, A. Sillitti: “Open Web Services Testing”. IEEE SERVICES 2011: 130-136. - implementation and testing of a tool for testing web services and its experiments
- E. Damiani, N. El Ioini, A. Sillitti, G. Succi: “WS-Certificate”. IEEE International Workshop on Web Services Security Management 2009. - proposal of a certification framework for web services.
- C. A. Ardagna, M. Banzi, E. Damiani, N. El Ioini, F. Frati: “Assurance Evaluation for OSS Adoption in a Telco Context”. Fifth International Conference on Open Source Systems 2009. - Security certification of open source software in teleco context.
- C. A. Ardagna, E. Damiani, N. El Ioini, F. Frati, P. Giovannini and R. Tchokpon. “Mapping Linux Security Targets to Existing Test Suites”, Fourth International Conference on Open Source Systems.

Book Chapters

- C. Pahl, N. El Ioini and S. Helmer: Fog and Edge Computing: Principles and Paradigms, chapter “A Lightweight Container Middleware for Edge Cloud Architectures”, Wiley, (2019).
- I. Fronza, N. El Ioini, C. Pahl, L. Corral: Agile Education, Lean Learning, chapter “Bringing the benefits of Agile techniques inside the classroom: a practical guide”, Springer, (2019).

Books

- Ernesto Damiani, Ardagna, Claudio Agostino, El Ioini Nabil, “Open Source Systems Security Certification”.

LANGUAGES

	Writing	Speaking
Arabic	Mother tongue	
English	C1	C1
Italian	C1	C1
French	B2	B2
German	A2	A2

Autorizzo il trattamento dei dati personali presenti nel CV ai sensi del D.Lgs. 2018/101 e del GDPR (Regolamento UE 2016/679).

12/08/2022

Nabil El Ioini