PERSONAL INFORMATION

Alessandro Tundo

 github.com/aletundo

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Date of birth 4th January 1994 | Nationality Italian

WORK EXPERIENCE

November 2020 – Present

Ph.D. Student

University of Milano - Bicocca
Milan, Italy

Research is in the scope of decentralized and adaptive monitoring approaches for Cloud-Edge scenarios.

March 2018 – Present

Fixed-term Teaching Assistant (Lab sessions and tutoring)

University of Milano - Bicocca
Milan, Italy

Supplementary educational activities for several B.Sc. and M.Sc. courses, mostly for the Computer Science degree. The activities consist of holding the laboratory session, tutoring students through e-learning platforms, grading the laboratory final projects or assignments.

– Software Development Process (M.Sc. Computer Science) [19-20, 20-21, 21-22]
– Cloud Computing (M.Sc. Computer Science) [19-20, 20-21, 21-22]
– Data Management & Visualization (M.Sc. Data Science) [19-20]
– Computer Science Laboratory I (B.Sc. Physics) [19-20]
– Distributed Systems (B.Sc. Computer Science) [17-18, 19-20]

February 2020 – November 2020

Research Scholarship Holder

University of Milano - Bicocca
Milan, Italy

The research activity entitled aims to extend and enhance the main functionalities of the VARYS framework. VARYS is a technology agnostic model-driven Monitoring-as-a- Service framework for the Cloud. In particular, the main objectives are enabling automatic dashboards generation and anomaly detections. The research work was supervised by Professor Leonardo Mariani.

February 2020 – October 2020

Independent Researcher

Quisque Srl.
Milan, Italy

The research objectives involve the development of DevOps practices and frameworks for container- based orchestrators (i.e., Kubernetes) and tailored set of tools for parking remote management through edge devices.

February 2019 – January 2020

Research Fellow (Assegnista di Ricerca)

University of Milano - Bicocca
Milan, Italy

The research activity was focused on designing approaches and techniques for application monitoring, anomaly detection and self-healing in Cloud Computing systems. The research work was carried out first the scope of the LEARN - Learning from Failing and Passing Executions at the Speed of Internet project (8 months) and next for the GAUSS – Governing Adaptive Unplanned Systems of Systems project (4 months). The research work was supervised by Professor Leonardo Mariani. In particular, I worked on:

– an agnostic model-driven Monitoring-as-a-Service framework (VARYS)
– an Anomaly Detection as-a-Service tool prototype
– self-healing and repairing approaches for container orchestrators (i.e., Kubernetes)

With respect to VARYS, I also delivered a talk and a tool demo in August 2019 at 27th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE).

| February 2017 – December 2018 | ### Research Scholarship Holder |

Consortium GARR
Milan, Italy

The research activity involved cloud-native architectures for Open Educational Resources (OER) and integrations into Learning Management Systems (LMS). The research work was supervised by Dr. Daniela Micucci (University of Milano – Bicocca) and by the GARR Scientific and Technical Committee. In particular, I worked on the design and development of a new version of the WikiToLearn platform. WikiToLearn is a wiki-based open source project for collaborative textbooks writing under the KDE Community umbrella, which I was involved in. I also explored DevOps and Automation practices for software development in cloud-native environments. During the research period I had to provide a quarter report about the advancement status, technical issues and the plan for the next quarter. I also had the opportunity to deliver talks at GARR events (Borsisti Day 2017, Borsisti Day 2018, Workshop GARR 2018) and participating to training courses on public speaking. At the end of the first year I was nominated by Consortium GARR for GÉANT's Future Talent Programme (Lighting Talk competition).

| January 2016 – February 2017 | ### Full-stack Developer | Freelance |

2Program SRL
Milan, Italy

Design and development of web applications and CMS from scratch.

– Requirements analysis and UML modelling
– Database schema design
– Full-stack development
– CI/CD pipelines design

| September 2015 – July 2016 | ### Waiter | Freelance |

Fatto Bene SRL
Milan, Italy

EDUCATION AND TRAINING

| 2016 – 2018 | ### MSc in Computer science, with honors |

University of Milano - Bicocca
Milan, Italy

During my master's degree thesis (supervised by Professor Leonardo Mariani), I started collaborating in the scope of a European funded 5G-PPP Phase 2 Project named NGPaaS – Next Generation Platform-as-a-Service. NGPaaS was a project jointly developed by telco industry leaders (i.e., Nokia, Orange, BT) and universities (i.e., DTU, University of Milano - Bicocca). Specifically, the I contributed to design and integrate a solution for Monitoring-as-a-Service (lately became the VARYS framework) in a 5G-ready Cloud PaaS for the telco industry (NGPaaS). Moreover, I also participated to other activities in the scope of anomaly detection and self-healing for the CORD platform (cloud-native platform for telco services). During the collaboration period, I had the opportunity to work with several telco industry researcher and professors, some of them have been co-authors of the paper "NGPaaS Framework for Enriched and Customized Virtual Network Functions-as-a-Service". I also attended two project meetings (Paris and Heraklion) and participated in writing project deliverables and research publications. An extensive list of the project outcomes is available at http://ngpaas.eu/projectoutcomes/.

2013 – 2016   **BSc in Computer science, with honors**

University of Milano - Bicocca
Milan, Italy

Thesis on semantic annotation and disambiguation for wiki platforms.

2006 – 2013   **High-school graduation diploma (100/100)**

I.I.S.S. Ettore Majorana
Brindisi, Italy

PERSONAL SKILLS

Mother tongue	Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	B2	B2	B2
	Cambridge PET Certification (Preliminary English Test) B1				
Spanish	A2	A2	A2	A2	A2

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication skills
- team work: I have worked in various types of teams in the research and development area. From 2016 to 2019 I have been part of WikiToLearn, an open source project under the KDE Community umbrella.
- intercultural skills: I am experienced at working in multicultural environment. Thanks to open source projects I have to deal with people from around the world, usually from Europe, USA or India.

Organisational / managerial skills
- I mentored for KDE Community for the Google Summer of Code 2016 and 2017. During the 2017 edition I attended to Google Summer of Code Mentor Summit @ Google Tech Corners in Sunnyvale, California. I had to assess the work and guide the student I mentored.
- in 2016 I founded a Linux User Group at my university with other classmates. In 2017 we started to deliver workshops and talks for the community.
- during my research positions at University of Milano - Bicocca I had classes and laboratories

Digital competences

SELF-ASSESSMENT				
Information Processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Independent user	Independent user	Proficient user

Digital competences - Self-assessment grid

Technical skills
- Programming languages: *Java, Python and PHP [Very good knowledge] - C and Javascript [Decent knowledge] - Bash [Minimum necessary knowledge]*
- Frameworks: *Spring Boot, Laravel, Flask*
- Databases: *SQL-based (MySQL, MariaDB), NoSQL (MongoDB, Redis, Neo4j)*
- Development: *Maven, Composer, NPM, Eclipse, Git*
- Operations: *Docker (Compose and Swarm-mode), Kubernetes, Ansible, Jenkins, Gitlab CI*
- Misc: *UML, DevOps practices, Design and Architectural patterns*

Driving licence	B

PUBLICATIONS

[1] Alessandro Tundo, Chiara Castelnovo, Marco Mobilio, Oliviero Riganelli, and Leonardo Mariani. "Declarative Dashboard Generation". In: *2020 IEEE International Symposium on Software Reliability Engineering Workshops (ISSREW)*. IEEE. 2020, pp. 215–218.

[2] M. Mobilio, M. Orrù, O. Riganelli, A. Tundo, and L. Mariani. "Anomaly Detection As-a-Service". In: *Proceedings of the 2019 IEEE International Symposium on Software Reliability Engineering Workshops (ISSREW)*. 2019, pp. 193–199.

[3] A. Tundo, M. Mobilio, M. Orrù, O. Riganelli, M. Guzmàn, and L. Mariani. "VARYS: an agnostic model-driven monitoring-as-a-service framework for the cloud". In: *Proceedings of the 2019 27th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering*. 2019, pp. 1085–1089.

[4] A. Tundo, M. Mobilio, M. Orrù, O. Riganelli, M. Guzmàn, and L. Mariani. "VARYS - a Technology Agnostic Model-Driven Tool for Monitoring-as-a-Service on the Cloud". In: *Presented at 5th Italian Conference on ICT Smart Cities and Communities (i-CiTies 2019)*. 2019.

[5] P. Veitch, A. Broadbent, A. Mimidis, J. Soler, M. Mobilio, A. Tundo, M. Guzmán, and S. Van Rossem. "NGPaaS Framework for Enriched and Customized Virtual Network Functions-as-a-Service". In: *Proceedings of the 2019 European Conference on Networks and Communications (EuCNC)*. IEEE. 2019, pp. 42–46.

[6] M. Orrù, M. Mobilio, A. Shatnawi, O. Riganelli, A. Tundo, and L. Mariani. "Model-Based Monitoring for IoTs Smart Cities Applications". In: *Presented at 4th Italian Conference on ICT Smart Cities and Communities (i-CiTies 2018)*. 2018.

ADDITIONAL INFORMATION

Prizes, Awards and Talks

— Talk *"VARYS - a Technology Agnostic Model-Driven Monitoring-as-a-Service Framework for the Cloud"* @ 27th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), Tallinn (Estonia). 2019
— Winner team (People's choice prize) @ HackTheCloud 2019.
The hackathon was organized by Consortium GARR and the University of Milano - Bicocca. The project consist of a cloud-native application to enable and increase farm-to-table products through a certified and monitored supply chain. 2019
— Winner team (2nd prize) @ HackTheCloud 2018.
The hackathon was organized by Consortium GARR and the University of Milano - Bicocca. The project consist of a cloud-native application to implement a car sharing companies aggregator with car pooling functionality. 2018
— Invited talk *"Automazione e monitoring: la cultura DevOps attraverso due casi di studio"* @ Workshop GARR 2018, Rome (Italy). 2018
— Winner team @ Hack.Developers 2017.
The hackathon was organized by AgID & Team Digitale, the Italian government team for digital transformation. The project consist of a microservice to ingest data from Km4City/Replicate Smart City platform into the Data Analytics Framework (DAF). 2017
— Scholarship "Orio Carlini" funded by Consortium GARR (2017 - 2018).
Consortium GARR shall make available to students or graduates 10 scholarship every year. The research project proposals have to be about digital infrastructure and services. The proposal focuses on collaborative e-learning and Open Education Resources. 2017
— Mentor for KDE Community (3 months) @ Google Summer of Code 2017
The project focuses on design and developing a Progressive Web App (PWA) for WikiToLearn. 2017
— Mentor for KDE Community (3 months) @ Google Summer of Code 2016
The project aim was to design and develop a graph-based rating system for WikiToLearn. 2016

PROCESSING OF PERSONAL DATA