Paolo **Di Francesco, PhD.**

paolo.difrancesco84@gmail.com | +43 (0) 660-8456426
Software Engineer & Telecommunications Research Engineer
LinkedIn: https://www.linkedin.com/in/paolo-di-francesco-67232524/
Google Scholar: https://scholar.google.at/citations?user=ZpEaqsQAAAAJ

PROFESSIONAL EXPERIENCE

October 2017 – present | Vienna, Austria

RadarServices GmbH, Software Engineer & Architect

- Designed and implemented a service oriented architecture for a new cloud-based product tailored to IT security monitoring.
- Transformed a large monolith application into a service-oriented architecture (currently undergoing).
- Defined business processes together with Project Managers from enterprise customers and implemented the best possible solution according to their needs.
- Designed and documented REST APIs, including data formats and API versioning strategy.
- Identified and solved critical performance issues to meet strict SLA for web applications.
- Mentored many junior developers.

January 2017 – October 2017 | Vienna, Austria

RadarServices GmbH, Development Team Leader

- Ensured the team is consistently delivering working software to the standards the department expects.
- Interviewed new candidate developers for the team.
- Ensured the team is collaborating closely with the stackeholders and understands their requirements.
- Ensured that no one person in the team is solely responsible for any task or activity.

March 2016 –December 2016 | Vienna, Austria

RadarServices GmbH, Software Developer

- Implemented new features according to stakeholders specifications.
- Test driven development.
- Peer review

September 2015-March 2016 | Dublin, Ireland

Trinity College Dublin, Postdoctoral Researcher

- Integrated the common access and control methodologies of the Fed4FIRE FP7 EU project into the FAVORITE wireless testbed.
- Designed and implemented a web-based resource management system and monitoring an automated resource assignment process.

September 2013-September 2014 | Dublin, Ireland

O2 Ireland & Trinity College Dublin, Data Analyst (university-enterprise collaboration)

- Collected and maintained large datasets of anonymized call details records for O2 mobile cellular networks across Ireland.
- Analysed spatio-temporal dynamics in cellular traffic demand and gained insight on cellular traffic patterns.

March 2010-December 2010 | Dublin, Ireland

Trinity College Dublin, Research Assistant

- Tested and reported on testbed equipments for wireless experimentation.
- Collected experimental data in Software Defined Radios to analyze MAC protocols performance for multi-hops networks.
- Designed and implemented innovative architectural solutions to overcome structural limitations for wireless systems with limited software capacity (i.e., split-functionality architecture between hardware and software).

AWARDS

Member of the winning team at the IEEE DySPAN 5G Spectrum Challenge 2015.

EDUCATION

February 2016

TRINITY COLLEGE DUBLIN, Ireland

PH.D. IN ELECTRONIC & ELECTRICAL ENGINEERING

Thesis: "On the Effects of Resource Sharing on Mobile Network Deployment Decisions".
Main focus on:

- Algorithm Design
- Mathematical Modeling
- Linear Optimization
- Game Theory
- Data Analysis
- Regression Analysis

March 2011

UNIVERSITY OF BOLOGNA, Italy

B.SC and M.SC DEGREE IN TELECOMMUNICATIONS ENGINEERING

TEACHING & MENTORING

September 2012-May 2015 | Dublin, Ireland

Trinity College Dublin, Teaching Assistant

- Telecommunication II (demonstrator)
- Fundamentals of Electronics (tutor)

FUNCTIONAL SKILLS

- Strong analytical, linear/integer programming, statistical modeling and complex problem solving skills.
- Organized, highly independent, highly motivated and goal-oriented.
- Leadership skills with experience in project management and high level of commitment.
- Strong abilities to work independently and as part of a team.
- Proven communication skills. Strong public speeches abilities with dozens of conference and workshops presentations to expert and non-expert audiences.
- Proven ability to work under pressure to produce results under tight deadlines.

TECHNICAL SKILLS

PROGRAMMING:

- Proficient: Ruby, Python, MATLAB
- Familiar: C/C++, JavaScript, PHP, Java, VHDL

DATABASES:

- Proficient: PostgreSQL
- Familiar: MySQL

OPERATING SYSTEMS:
Linux, Mac OS X

OTHERS (Tools & Frameworks):

- Proficient: Ruby on Rails (web application framework), Gurobi (mathematical programming solver), LaTeX, git, Swagger (OpenAPI).
- Familiar: Kubernetes, Nginx, GNU Radio & IRIS (Software Defined Radio platforms), CPLEX (mathematical programming solver), ArcGIS and QGIS (geographic information systems), WireShark, Zabbix (monitoring tool).

LANGUAGE SKILLS

ENGLISH: Fluent
GERMAN: Beginner
ITALIAN: Mother Tongue

REFERENCES

Available upon request.

LIST OF SCIENTIFIC PUBLICATIONS

PEER REVIEWED JOURNALS:

- **P. Di Francesco**, F. Malandrino, and L. A. DaSilva, "Assembling and Using a Cellular Dataset for Mobile Network Analysis and Planning, *IEEE Transactions on Big Data*, 2018.
- **P. Di Francesco**, J. Kibiłda, F. Malandrino, N. Kaminski, and L. A. DaSilva, "Sensitivity Analysis on Service-Driven Network Planning, *IEEE/ACM Transactions on Networking*, vol. 25, no. 3, pp. 1417-1430, June 2017.
- **P. Di Francesco**, F. Malandrino, T. K. Forde, and L. A. DaSilva, "A Sharing- and Competition-Aware Framework for Cellular Network Evolution Planning, *IEEE Transactions on Cognitive Communications and Networking*, vol. 1, no. 2, pp. 230-243, June 2015.
- **P. Di Francesco**, S. McGettrick, U. K. Anyanwu, A. B. MacKenzie, and L. A. DaSilva, "A Split MAC Approach for SDR Platforms, *IEEE Transactions on Computers*, vol. 64, no. 4, pp. 912-924, April 2015.

PEER REVIEWED CONFERENCES:

- J. Kibiłda, **P. Di Francesco**, F. Malandrino, and L. A. DaSilva, "Infrastructure and Spectrum Sharing Trade-offs in Mobile Networks, *IEEE Dynamic Spectrum Access Networks (DySPAN)*, Stockholm, Sweden, 29 September-2 October 2015.
- **P. Di Francesco**, F. Malandrino, and L. A. DaSilva, "Network Sharing in Cellular Networks: a Demand Trace-driven Study, *ACM SIGCOMM Capacity Sharing Workshop*, Chicago, IL, 18 August 2014, pp. 39-44.
- A. Puschmann, **P. Di Francesco**, M. A. Kalil, L. A. DaSilva, and A. Mitschele-Thiel, "Enhancing the Performance of Random Access MAC Protocols for Low-cost SDRs, *8th ACM Intl. Workshop on Wireless Network Testbeds, Experimental Evaluation and Characterization*, Miami, FL, 30 September, 2013.
- **P. Di Francesco**, S. McGettrick, U. K. Anyanwu, J. C. O'Sullivan, A. B. MacKenzie, and L. A. DaSilva, "A Split Architecture for Random Access MAC for SDR Platforms, *8th Intl. Conf. on Cognitive Radio Oriented Wireless Networks (CROWNCOM),* Washington, DC, July 8-10, 2013

- L. A. DaSilva, J. Kibiłda, **P. Di Francesco**, T. K. Forde, and L. E. Doyle, "Customized Services over Virtual Wireless Networks: The Path towards Networks without Borders, *Future Network and Mobile Summit (FNMS)*, Lisbon, Portugal, July 3-5, 2013.
- Y. Xiao, Y. Chau, **P. Di Francesco**, and L. A. DaSilva, "Dynamic Spectrum Scheduling for Carrier Aggregation: A Game Theoretic Approach," *Proc. IEEE Intl. Conf. on Communications (ICC)*, Budapest, Hungary, June 9-13, 2013, pp. 2672-2676.
- J. C. O'Sullivan, **P. Di Francesco**, U.K. Anyanwu, L. A. DaSilva, and A. B. MacKenzie, "Multi-hop MAC Implementations for Affordable SDR Hardware, *IEEE Symposia on New Frontiers on Dynamic Spectrum Access Networks (DySPAN)*, poster paper, Aachen, Germany, May 3-6, 2011, pp. 632-636.