

Antonio Mallia

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Work experience

2018–present **PhD Fellow**, *New York University*, New York, US.

Teaching Assistant for Web Search Engines (Fall 2018)

2016–2018 **Software Engineer**, *Bloomberg L.P.*, London, United Kingdom.

Working in the Collaboration Frameworks team on a distributed architecture, and ensuring reliability, scalability and performance. Working in an Agile team, doing software development/testing, code optimization and code review. Learned how to work with large volumes of real-time data, and how to develop software in a large-scale, fast-paced environment.

Detailed achievements:

- Involved in the design and development of a tagging and sharing framework.
- Designed and refactored code following the microservice paradigm.
- Created a Continuous Integration infrastructure to automate build, tests and deployment.
- Migrated the build system to use the more modern CMake.
- Introduced static code analysis and code coverage to run on the codebase.
- Investigated and debugged production environment issues caused by software defects, system configuration errors, and data inconsistencies.

2013–2016 **Software Engineer**, *NIC .it - National Research Council*, Pisa, Italy.

Worked for the Italian National Research Council on projects for the ccTLD .it Registry.

Detailed achievements:

- Developed several features of the main application used by NIC .it domain name registrars. Focused on database query optimization, export of data, third-party web-services integration.
- Co-operated on the development of an internal application, used by administrative staff to manage contracts and billing system. Focused on UX enhancement, data presentation and export.
- Co-operated on the development of an ETL system and presentation of data using interactive charts.
- Developed a UI library for JavaServer Faces (JSF) application and integration with the main NIC applications.
- Planned and developed an e-voting system used for the election of the Registry steering committee.

2011–2016 **Software Engineer**, *Self-Employed*, Remote.

Worked as a freelancer remotely and on personal projects.

Detailed achievements:

- Planned and developed a web application providing web privacy and anonymity tools: user management, load balancing, payment integration (Paypal, Bitcoin, credit card gateway, phone). Design of a RESTful API for third-party integration.
- Mail server configuration and administration.
- Google Chrome and Mozilla Firefox extension development to integrate features of a web application.
- Planned and developed a CMS to perform feed aggregation using parsing technics and categorisation.
- Software prototyping of a crawling and parsing system of an airline company to extract flight information and post-analysis.
- Developed a ad-hoc download manager software, including packaging for Windows and OS X.
- Owned an Italian blog network about technology widely-read and realised using Wordpress. Development of several plugins, integration with advertising agency web services. System administration main focused on performance optimisation.

Education

- 2018–present **Ph.D. Program in Computer Science, New York University.**
Pursuing a Ph.D. with a focus on advancing efficiency in Information Retrieval for large-scale systems.
Relevant exams:
- Machine Learning
 - Natural Language Processing
 - Graphics Processing Units (GPUs): Architecture and Programming
- 2014–2015 **Master's degree in Computer Science, University of Pisa, 110/110 cum laude.**
This Master's Degree in Computer Science provided me a solid, in-depth background, in line with the innovation needs of the informatics field. The courses attended increased my knowledge portfolio, in both the theoretical and practical aspect.
Thesis: *Efficient top-k document retrieval with two level indexes. Supervisor: Prof. Rossano Venturini*
Relevant exams:
- Advanced Algorithms
 - Advanced Database Systems
 - Advanced Programming
 - Computational Models
 - Distributed Systems: paradigms and models
 - Numerical Methods and Optimization
 - Principle of Programming Languages
- 2012–2013 **Erasmus Programme, University of Essex.**
This experience enabled me to understand the value of studying and working in an international environment. Exploring practice-oriented learning methods improved my professional skills.
Relevant exams:
- Programming in Java
 - Web Technologies & XML
 - Large Scale Software Development & Extreme Programming
 - Network Laboratory
 - Photonics Networks & Devices
 - Mobile Robotics
 - Programming Embedded Systems
 - Electronic System Design & Integration
- 2008–2012 **Bachelor's degree in Electronic Engineering, University of Pisa.**
I acquired knowledge of methodological aspects of mathematics and basic disciplines to understand and provide appropriate solutions to engineering problems. During the Curriculum in Electronic Engineering I developed professionally with sound fundamental and multidisciplinary skills ranging from electronics, circuit theory, systems theory, computer science, communications, control theory, economics, electromagnetism, nanoelectronics.

Publications

- Antonio Mallia and Elia Porciani. **Faster BlockMax WAND with Longer Skipping.** In *Proceedings of the European Conference on Information Retrieval (ECIR)*, 2019.
- Antonio Mallia, Michal Siedlaczek, and Torsten Suel. **An Experimental Study of Index Compression and DAAT Query Processing Methods.** In *Proceedings of the European Conference on Information Retrieval (ECIR)*, 2019.
- Joel Mackenzie, Antonio Mallia, Matthias Petri, J. Shane Culpepper, and Torsten Suel. **Compressing Inverted Indexes with Recursive Graph Bisection: A Reproducibility Study.** In *Proceedings of the European Conference on Information Retrieval (ECIR)*, 2019.

Melanie Tosik, Antonio Mallia, and Kedar Gangopadhyay. **Debunking Fake News One Feature at a Time**. *CoRR*, abs/1808.02831, 2018.

Antonio Mallia, Giuseppe Ottaviano, Elia Porciani, Nicola Tonellotto, and Rossano Venturini. **Faster BlockMax WAND with Variable-sized Blocks**. In *Proceedings of the Conference on Research and Development in Information Retrieval (SIGIR)*, 2017.

Other research activities

- External reviewer for KDD 2018

Books

Antonio Mallia and Francesco Zoffoli. **C++ Fundamentals**. Packt Publishing. 2019

Languages

Italian **Native**

English **Professional working proficiency**

TOEFL iBT: 105 (C1)

Computer skills

OS: Mac OS X, Linux and Windows.

Programming: Java, C++, C, Python, Javascript, PHP.

Database: MySQL, MongoDB, SQLite, Redis.

Web Design: HTML5, CSS3, jQuery.

Development Environment: Eclipse, Sublime Text, PyCharm, IntelliJ IDEA, Clion, Vim.

Project Management: SVN, Git, Trac, Gitlab.

Continuous Integration: Jenkins, Travis CI.

Web Server: Apache, Lighttpd, Jetty, JBoss AS.

Container engine: Docker.

Framework: Seam, Dropwizard, SlimPHP.

Mail: Postfix, Dovecot.

Documentation: Markdown, LaTeX.

CMS: Wordpress, Ghost.

Invited Talks and Tutorials

04/2016 **Backend for Android Developers**, *Droidcon Italy*, Turin.

10/2017 **C++: unexpected behaviour**, *Topconf*, Düsseldorf.

11/2017 **C++: unexpected behaviour**, *Meeting C++*, Berlin.

Volunteering

CppCon 2018 Participated as conference volunteer to CppCon 2018 edition.

Personal skills

Leadership Good experience in team management acquired training and guiding a blog network editorial staff.