Matteo **Di Pirro**

Software Engineer

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Education

KU Leuven
Leuven (Belgium)

Erasmus Student
Sept. 2017 - Feb. 2018

- Development of secure software
- Embedded and distributed systems
- Fact checking

Università degli Studi di Padova
Padua (Italy)

MSc in Computer Science
Sept. 2016 - Sept. 2018

- Thesis: How Solid is Solidity? An In-depth Study of Solidity's Type-Safety.
- Majors
    - Design and development of reliable systems
    - Software and theory of programming languages
- Magna cum Laude

Università degli Studi di Padova
Padua (Italy)

BSc in Computer Science
Sept. 2013 - Sept. 2016

- Thesis: Management of an Identity and Access management cloud-based system.
- Magna cum Laude

ITIS Francesco Severi
Padua (Italy)

High School
Sept. 2008 - June. 2013

- Thesis: Speech recognition in Android.
- Mark 100/100

Skills

Programming	Node.js, Python, Java (also for Android; use of RMI, JEE, and Google Application Engine), C, C++, Solidity, Haskell, JavaScript
Databases	MySQL, MongoDB
Versioning	Git, SVN
Documents	LaTeX
Languages	Italian (mother tongue), English (fluent), French (intermediate - DELF B1)

Work Experience

The AKKAdemy / Akka Technologies
Geneva (Switzerland) and Sophia-Antipolis (France)

Graduate Software Engineer
Jan. 2019 - Present

Athesys SRL
Padua (Italy)

Software Engineer
May. 2016 - Jul. 2016

- Designed an overall microservices-based architecture cooperating with an existing environment.
- Developed a module for an Identity and Access Management cloud-based (IDaaS) system (Monokee).
- Implemented several RESTful APIs in Node.js, in particular using the Express.js library and storing data in a MongoDB database.
- Developed a built-in logging system to monitor user activities.

CNR (Consiglio Nazionale delle Ricerche) - Institute of Biomedical Engineering
Padua (Italy)

Programmer
Jun. 2012 - Jul. 2012

- Designed and developed a basic content management system (CMS) for an European research group.
- Implemented both front-end (HTML, CSS) and back-end (PHP, JavaScript, MySQL).

Selected projects

LinQedIn *Università degli Studi di Padova*
- LikedIn-like local social network with basic client and admin functionality
- Clients can sign-up, manage their profile and their contacts network and search for people
- Permission-based search engine: different filters available for different types of users
- Admins can manage the application with no restrictions

Actors Model *Università degli Studi di Padova*
- Mock system abstracting a simplified actors model
- Actors can send and receive messages
- Actors can be local or remote
- Synchronization between receiving and processing messages
- Actors are created and located via a centralized entity, the actor system

MaaS *Università degli Studi di Padova*
- SaaS (Software as a Service) application for companies to keep track of their products
- Connection with arbitrary MongoDB databases query-able using a Domain Specific Language
- I gained expertise about the roles involved in the software life-cycle
- Writing of a holistic documentation for a complex application

Haskell Secure Library *Università degli Studi di Padova*
- Investigation on language-based information security
- Enforcing fine-grained data integrity and confidentiality properties
    - Non-interference (possibly defining declassification policies)
    - Input validation
    - Trusted computations on untainted data

Football Fact-Checking *KU Leuven*
- Application used to validate claims and check facts related to football
- Some facts were hard-coded, whereas others were taken from Twitter
- The fact checking algorithm uses a built-in knowledge graph

18F97J60 Microchip *KU Leuven*
- Basic timer counting time and flashing LEDs when scheduled
- DHCP relay forwarding packets from/to clients and servers. It was developed using the TCP/IP Microchip's stack.

Car rental company *KU Leuven*
- Developed three versions of a car rental company in Java
    - Java RMI: manual synchronization and no support for persistence and distributed transactions
    - Java EE: using JPA (for persistence purposes) and JTA (for distributed transactions)
    - Google App Engine to investigate on the differences with JEE

Publications

Proceedings of International Conferences

- Di Pirro, Matteo and Conti, Mauro and Lazzeretti, Riccardo. "Ensuring information security by using Haskell's advanced type system". In *Security Technology (ICCST), 2017 International Carnahan Conference on*, pp 1–6. IEEE, 2017

- Crafa, Silvia and Di Pirro, Matteo, and Zucca, Elena. "Is Solidity Solid Enough?". In *3rd Workshop on Trusted Smart Contracts*, 2019

Thesis

- Di Pirro, Matteo. "*How Solid is Solidity? An In-dept Study of Solidity's Type Safety*". Master Thesis. Università degli Studi di Padova, 2018