

# Mário Almeida

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## SHORT BIOGRAPHY

Mario is an experienced fullstack software developer and researcher. As a researcher he has published in top tier (A and A\*) research conferences, in the areas of mobile, networks, machine learning, security and social networks. As a developer his most relevant work has been in the crypto currency space as well as mobile application testing and streaming. He has been involved in the design, development and scaling of multiple platforms, from the backend, to frontend and analytics. He has lead and built teams and conducted meetings with clients and investors. He has strong analytical skills and is able to tackle the most complex problems. His favorite coding language is elixir. When not coding he is found bouldering, skying or just traveling around.

## EDUCATION

### UPC

#### PHD IN MOBILE SYSTEMS AND NETWORKS

Barcelona School of Informatics  
Sept'13 - Sept'17 | Barcelona, ES  
Grade: Excellent Cum Laude

### KTH/UPC

#### EUROPEAN MASTER IN DISTRIBUTED COMPUTING

Royal Institute of Technology  
Aug'11 - Aug'13 | Stockholm, SWE  
Grade: B | Thesis: A

### IST

#### BSC IN INFORMATION SYSTEMS AND COMPUTER ENGINEERING

Instituto Superior Tecnico  
Jul'07 - Jul'10 | Lisbon, PT

## LINKS

Github:// [4knahs](#)  
Bitbucket:// [aknahs](#)  
LinkedIn:// [aknahs](#)  
Twitter:// [@4knahs](#)  
StackOverflow:// [4knahs](#)  
Scholar:// [qXgq0BgAAAAJ](#)

## SKILLS

### PROGRAMMING

Proficient:

Java • C • Elixir • Python • Ruby

Experienced:

Scala • Javascript • Bash • Awk

Others:

C++ • Lisp

## WORK EXPERIENCE

### SAMSUNG AI | MACHINE LEARNING RESEARCHER

March 2018 – now | Cambridge, UK

At Samsung Research, we are developing innovative Artificial Intelligence (AI) technologies to enhance current business and open up new business opportunities, with the ultimate goal of enhancing human life and contributing to the society.

#### Responsibilities

- Develop novel ML systems and algorithms to optimize inference and training on embedded devices and distributed setups.

#### Tech stack

- Tensorflow, pytorch, caffe2, numpy, matplotlib, jupyter, horovod, android.  
Coding languages: python, java, C.

### MOSAIC.IO | SENIOR FULLSTACK ENGINEER

August 2018 – February 2019 | London, UK

Mosaic enables cryptofinance retail and institutional clients to access and build applications on its data platform as well as access to deep qualitative and quantitative research. Partners include large financial service providers, hedge funds, venture capitalists, and leading cryptocurrency wallets and exchanges.

#### Responsibilities

- Design, implementation and scaling of a cryptocurrency analytics platform connected to exchanges, blockchain nodes, social networks and news streams.
- Development of the data pipeline, storage, monitoring, validation and analytics.
- Highly involved in the design decisions and with a broad responsibility for many of the in-house developed platforms.
- Involved in most of the investor/client calls and meetings.

#### Tech stack

- AWS lambda, redshift, firehose, s3, elasticsearch, fargate, grafana, terraform, ansible, circleci, etc. Coding languages: python, ruby and javascript.

# COURSEWORK

## BSC

Computer Architecture  
Programming Logic  
Algorithmic Analysis and Synthesis  
Artificial Intelligence  
Compilers  
Programming with objects  
Operating Systems  
Computer Networks  
Distributed Systems  
A lot of maths and physics  
Bsc full course list

## MSC

Distributed and Networked Systems  
Concurrency and Parallelism  
Security in Inf. Tech Systems  
System Performance and Evaluation  
Algorithmic Methods & Math Models  
Computer Networks  
Cloud Computing  
Decentralized Systems  
Advanced Topics in Dist. Computing  
Impl. of Scalable Dist. Systems  
Communication Networks Optimization  
Technical writing  
Msc course list

## TAPPAS | HEAD OF ENGINEERING

September 2017 – now | Barcelona, ES

Tappas mission is to make mobile app testing as easy, effective, and ubiquitous as possible. Tappas augments the scale of interactive testing via planetary scale crowdsourcing and autonomous AI tools trained by humans.

### Responsibilities

- Design, implementation and scaling of an application testing platform with thousands of human testers.
- Leadership of a team of engineers, from design to production.
- Led many investor talks and discussions with clients.

### Tech stack

- Tech stack: phoenix, elastic search, S3, postgres, ETS, grafana, ansible, virtualization (qemu), android, etc. Coding languages: elixir, javascript, java, C.

## TELEFONICA | PHD RESEARCHER

September 2013 – September 2017 | Barcelona, ES

Telefonica is the number one Spanish multinational by market capitalisation and one of the largest private telecommunications companies in the world. Its research department focuses on global, technical innovation trends.

### Responsibilities

- Design, implementation and scaling of an Android streaming platform for hundreds of users – innovation project awarded with funding and a team.
- Design and implementation of Mobile Code Offloading solution that transparently partitions real Android apps and performs partial execution in the cloud or in the network (RAN) – patent submitted.
- Design and implementation of static and dynamic analysis platform and tools to study Android applications.
- Spin-off of two innovation projects, one in parental control and another in ISP-hosted virtual mobile devices. The last one with funding and a team of developers, sales and business people.

### Tech stack

- Tech stack: qemu, docker, vagrant, ansible, ruby on rails, sidekiq, android JVM, MQTT, rabbit MQ, android, postgres, etc. Coding languages: C, ruby, elixir, python, java, javascript.

## CAMBRIDGE NETOS | PHD RESEARCH INTERN

September 2015 – December 2015 | Cambridge, UK

The NetOS group is part of the Cambridge's Computer Laboratory Systems Research Group. It undertakes research into topics including computer architecture, operating systems design, network monitoring and protocol design, practical distributed systems and mobile communications.

### Responsibilities

- Design and implementation of a twitter analysis platform and botnet.
- Design of load balancing algorithms for diffusing computation in the network.

### Tech stack

- Tech stack: ruby on rails, android, qemu, unikernels. Coding languages: ruby, java, C, OCAML.

## PROJECTS

### OPENSOURCE

#### HAT

The Internet of Personal data micro-servers

#### DROIDBROKER

Static analysis tool for Android applications

#### TRINITY

Traffic tunneling platform for monitoring applications traffic

#### ANGEL

Project to intercept text and images in Android applications

#### STCS

Streaming Twitter Computation System

#### GMSREPLACE

Enable Google Play Services in unsupported mobile devices

#### ZKNDB

Storage benchmarking framework

## HUB OF ALL THINGS | BACKEND DEVELOPER

October 2015 – March 2016 | Cambridge, UK

The HAT Project addresses the issue of data ownership by building a market platform for individuals to trade and exchange their own data for services by providing a decentralized person-owned and controlled “microserver” for personal data storage, processing, AI and exchange.

### Responsibilities

- Design, development and scaling of the backend infrastructure, using Kubernetes in AWS.

### Tech stack

- Tech stack: Kubernetes, Docker, AWS, Scala Play, Akka. Coding languages: scala.

## TELEFONICA | MSc RESEARCH INTERN

February 2013 – August 2013 | Barcelona, ES

- Design and implementation of Trinity, a scalable architecture for application-aware mobile traffic optimization. (Master thesis grade A <sup>a</sup>)
- Tech stack: Android, MQTT, Linux. Coding languages: C, Java.

## SWEDISH INSTITUTE OF COMPUTER SCIENCE | MSc PROJECT

August 2012 – January 2013 | Stockholm, SWE

SICS is a leading research institute for applied information and communication technology in areas strategic for Swedish industry.

### Responsibilities

- Implemented the first highly available Hadoop YARN, along with a storage benchmarking framework supporting HDFS, ZooKeeper and NDB MySQL.

### Tech stack

- Tech stack: NDB MySQL Cluster, HDFS, Zookeeper, Hadoop MR. Coding languages: Java.

## ACHIEVEMENTS

2018	FUNDS	Finalist in the ROTR seed fund
2016	FUNDS	SmartDumbPhones innovation project
2013	PATENT	Patent based on my offloading work (EP13382561)
2011	GRANT	Granted Cat. B (EU) scholarship in EMDC

## SELECTED PUBLICATIONS

2020	MOBICOM	SPINN: Synergistic Progressive Inference of Neural Networks
2018	UPC	Detecting and Mitigating Energy Inefficiencies in Mobile Apps
2018	PST	Android Malware Detection via Behavioral Modeling
2018	WWW	CHIMP: Crowdsourcing Human Inputs for Mobile Phones
2017	CONEXT	Dissecting DNS Stakeholders in Mobile Networks
2016	PAM	An Empirical Study of Android Alarm Usage for App Scheduling
2013	IMC	RILAnalyzer: a Comprehensive 3G Monitor On Your Phone

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<sup>a</sup>KTH Seven-point scale grading