

# Samuel Cristobal, Software Engineer

## Details

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## Summary

In 2010, I graduated in a double degree in Mathematics and Engineering with majors in Algebraic Geometry and Logic. Afterwards, I worked 4 more semesters at the universities of Madrid and Vienna as an associate.

From 2012 until 2019, I worked as a Research Engineer (promoted to senior in 2013 and director in 2017.) in a private research institute located in Madrid, our projects were funded by the EC in the fields of Data Mining, Graph Theory and network optimization.

In 2019, I moved to Innsbruck, co-founded DataBeacon and assumed the role of Software Engineer and CTO. DataBeacon is a B2B platform that provides Air Traffic Control as a service (ATCaaS) in countries with high air traffic growth.

The last 3+ years, I have been building DataBeacon's technology and team. The company serves a small group of early adopters with applications and services in production and demos. The team has grown to around ~20 employees.

However, I am a very technical, hands-on individual. Therefore the prospects of being a CTO of a mid-size company are not aligned with my interests. It is time for me to move on and find new challenges.

## Skills

**Programming languages:** TypeScript, Go and Rust. Previously: Python, Scala and C.

**Frontend:** React, Web Components and Web Assembly.

**Backend:** REST APIs, Web Sockets and GraphQL.

**Languages:** English (IELTS 8.0, July 2021), Spanish and basic German.

# Experience

## Software Engineer and CTO

**Company:** DataBeacon ([www.databeacon.aero](http://www.databeacon.aero)).

**Duration:** From January 2019 until present day.

**Responsibilities:**

Complete lifecycle of user-facing applications exposing CRUD operations on SQL, document and key-value databases and pub/sub over data streams. In charge of the engineering team.

- Complete life cycle of single page frontend applications using TypeScript, React Redux.
- Improved reusability and performance of key components using Lit - Web Components and replaced critical hot paths with Rust - Web Assembly.
- Contributions to the UX/UI and design system.
- Built REST APIs and Web Socket backends in NodeJS and Go.
- Assembled an engineering team of 8. Established best practices, git standard commits, semantic versioning, tooling, code style, static analysis, linting. Lay out the basis for CI/CD - DevOps and automated testing.

## Director Research Development Engineering

**Company:** Innaxis R&D ([www.innaxis.org](http://www.innaxis.org)).

**Duration:** From June 2017 until December 2018.

**Responsibilities:**

Responsible for data science and artificial intelligence research, solutions, and platforms.

- Write scientific software using Python in the field of data mining and machine learning.
- Deploy, test and profiling of Machine Learning models on AWS using custom scripts on EC2.
- Principal investigator for data science international research projects.

## Senior Research Engineering

**Company:** Innaxis R&D ([www.innaxis.org](http://www.innaxis.org)).

**Duration:** From December 2013 until May 2017.

**Responsibilities:**

Principal investigator, network optimization and data mining.

- Write scientific software using Python, C and Matlab-Simulink in the field of network optimization, data mining and knowledge discovery.
- Deploy, test and profiling of Machine Learning models on AWS using custom scripts on EC2.
- Scientific and technical writing, publications and conferences.

## Research Engineering

**Company:** Innaxis R&D ([www.innaxis.org](http://www.innaxis.org)).

**Duration:** From October 2011 until November 2013.

**Responsibilities:**

Analysis of delay propagation on stochastic graphs.

- Write scientific software using C and Matlab-Simulink in the field of network optimization and topology.
- Participation in international research projects.
- Scientific and technical writing, publications and conferences.

## Education

### Associate Research Fellow

**School:** Universität Wien.

**Duration:** From October 2010 until September 2011.

**Topic:** Research on algebraic geometry, singular geometries over finite fields.

### MSc Mathematics and applications

**School:** Universidad Autonoma de Madrid.

**Duration:** From October 2009 until June 2010.

**Major:** Algebraic Geometry and Logic.

### Assistant Intern

**School:** Universidad Autonoma de Madrid.

**Duration:** From October 2009 until September 2010.

**Topic:** Mathematical logic, model theory of formal systems with PROLOG.

### BSc with honors in Mathematics

**School:** Universidad Complutense de Madrid.

**Duration:** From October 2004 until June 2009.

**Major:** Algebraic Geometry and Logic.

### BEng Telecommunications

**School:** Universidad Politecnica de Madrid.

**Duration:** From October 2000 until June 2005.

**Thesis:** “Pseudo-random number generators based on discrete, chaotic attractors” with C.