



# Sebastiano Tronto

Mathematician, programmer



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## About me

I am a software developer specializing in scientific software. I mainly use with C and C#, but I can work with other languages such as of C++ and Python. I have a strong Mathematical background, especially in Algebra, Geometry and Number theory. As a former competitive programmer, I have a good knowledge of algorithms and data structures.

## Work experience

### Scientific software developer

2022-2024 I currently work for Shell via ALTEN Nederland on an integrated reservoir simulator. This is a large C# and C++ project that relies on multiple external components and in-house developed parts. Working on this project gave me familiarity with scientific simulation software in the domain of subsurface engineering, as well as experience in dealing with working in a Scaled Agile Framework.

### Doctoral researcher

2018-2022 As a doctoral student I was actively pursuing research in Number Theory, more precisely on *Kummer theory for elliptic curves and other algebraic groups*. The research activities included both team work and autonomous study, as well as presenting my work at international conferences.  
In my four years as a PhD student I published 8 papers, with a further paper currently being reviewed.  
See [sebastiano.tronto.net/research](https://sebastiano.tronto.net/research) for a list of publications and [sebastiano.tronto.net/talks](https://sebastiano.tronto.net/talks) for a list of talks.

### Teaching and project supervision

2018-2022 During my PhD I regularly taught classes, both as a teacher assistant and as a main instructor. In 2021 I was awarded the *University of Luxembourg teaching award* for my outstanding course *Mathematical Software*. The course material is available at [github.com/sebastianotronto/mathsoftware](https://github.com/sebastianotronto/mathsoftware).  
I have supervised and lead multiple student projects, ranging from short Bachelor mid-term projects to Master theses.

## Education

### PhD in Mathematics

2018-2022 Joint PhD at the University of Luxembourg and the University of Leiden. Thesis title: *Kummer theory for commutative algebraic groups*. Defended in September 2022.

### Master's degree

2016-2018 Double master degree in Mathematics at the University of Milan and the University of Leiden (ALGANT program). Special focus on Algebra, Algebraic Geometry and Number Theory. Graduated *cum laude* at the University of Milan and *summa cum laude* at the University of Leiden.

### Bachelor degree

2013-2016 Bachelor degree in Mathematics at the University of Trento. Graduated *with honour*.

## Technical skills

- **Programming languages.**

I have good knowledge of C#, C and UNIX shell scripting. Intermediate level of C++ and Python. Basic knowledge of multiple other languages including Java, J, SQL and x86 Assembly. See [sebastiano.tronto.net/git](https://sebastiano.tronto.net/git) for my personal projects.

- **Strong algorithm design and implementation skills.**

I took part in multiple national programming contests during high school, obtaining multiple awards and high-ranking placements. I qualified for the International Olympiads in Informatics in 2012 and for the regional phase of the ACM-ICPC in 2017.

- **Linux and UNIX sysadmin.**

I am long-time Linux user, and I manage a personal server running OpenBSD that use for serving websites, git hosting, email services and more.

- **Computer algebra software.**

I am a proficient user of computer algebra software for research, such as SageMath. I implemented a new algorithm described in one of the research papers of my team.

## Other skills and activities

- **Languages.**

English (fluent), Italian (mother tongue). Basic reading skills in French and Dutch.

- **Speedcubing and related activities.**

I can solve a Rubik's cube in around 8 second, as well as solving it blindfolded in less than 30 seconds. I regularly take part in official competitions regulated by the *World Cube Association* (WCA), where I have obtained multiple podium placements at World and European Championships. I currently hold a world record for finding the most efficient solution for the Rubik's cube, as well as several national records across different events.

As a *WCA delegate* I am responsible for ensuring that all regulations are followed during speedcubing competition. I am a member of the *Disciplinary Committee* of the WCA, which is the entity responsible for investigating and deliberating on violations of the Regulations and Code of Conduct, such as cheating or improper behavior.

- **Leadership skills.**

Between 2021 and 2024 I was the leader of the WCA Disciplinary Committee. My tasks included ensuring that the team worked efficiently, coordinating with Association's Board of Director as well as carrying out regular work as a member of the Committee.