

# ELMAR RITSCH

## COMPUTATIONAL PHYSICIST & SENIOR SOFTWARE DEVELOPER

Geneva Area – Switzerland/France

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### + SUMMARY

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I'm a passionate computational physicist with a strong background in developing high performance C++ applications for Monte Carlo simulations of CERN's big data experiments. I like spending my free time developing well-tested algorithmic trading applications in Python and combining them with machine learning techniques. I love the idea of open-source software and I have contributed to a number of public projects. You might also find me doing penetration tests of public websites, flying single engine airplanes with my friends or spending time outdoors in the Alps.

### + CORE COMPETENCIES

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#### Personality and principles

Communication is key, regardless of team size  
Love learning, building and creating new things  
Team player who loves to collaborate and also to work independently  
Code absolutely needs tests  
Code must be clear and readable  
Beware of premature optimization and feature creep

#### Workflows and practices

Test-driven Development  
Code Reviews  
DevOps  
Continuous Integration, Delivery and Deployment

#### Programming languages

Python, C++, Bash, C

#### Tools

Docker, Git, GitLab, Jira, Subversion, Elasticsearch

#### Science

Monte Carlo Simulation, Statistics, Physics

#### Operating systems

Linux, macOS, Windows, Android

### + EXPERIENCES

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#### 2015-2018 **SENIOR SOFTWARE DEVELOPER, POSTDOCTORAL RESEARCHER**

**CERN**, Geneva, Switzerland

*Co-leader of a software developer team for high performance Monte Carlo simulations. CPU and memory performance analysis and optimization. Focus on software quality through testing and test-driven development and code review. Official guide for CERN visitors.*

#### 2011-2015 **SOFTWARE DEVELOPER, PHD RESEARCHER**

**CERN**, Geneva, Switzerland

*Design, develop and maintain a high performance Monte Carlo simulation framework written in C++.*

#### 2009-2011 **SOFTWARE DEVELOPER**

**UNIVERSITY INNSBRUCK**, Innsbruck, Austria

*Develop and maintain a high speed Monte Carlo simulation application.*

2007 **PLANT ENGINEER**

**AGB Anlagen-Geräte-Betriebstechnik GmbH**, Hall in Tirol, Austria

*Design of artificial snow systems.*

2006 **MECHANICAL ENGINEER**

**SEZ AG**, Villach, Austria

Design of chemical cleaning machines for semiconductor wafers.

+ EDUCATION

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2011-2015 **PHD IN COMPUTATIONAL PHYSICS - DISTINCTION**

**CERN**, Geneva, Switzerland

**UNIVERSITY INNSBRUCK**, Innsbruck, Austria

*PhD thesis: "ATLAS Detector Simulation in the Integrated Simulation Framework applied to the W Boson Mass Measurement"*

2006-2011 **MAGISTER/MASTER IN COMPUTATIONAL PHYSICS - DISTINCTION**

**UNIVERSITY INNSBRUCK**, Innsbruck, Austria

*Chairman of student's association, responsible for budget planning and computer system administration.*

*Diploma thesis "Fast Calorimeter Punch-Through Simulation for the ATLAS Experiment"*

1999-2004 **MECHANICAL ENGINEER**

**TECHNICAL HIGH SCHOOL ("HTL")**, Innsbruck, Austria

*Setup and program a control system for an industry robot as the final diploma project.*

+ LANGUAGES

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Mother tongue **German**

Foreign languages **English**

(first foreign language, level C1)

**French**

(second foreign language, level B1)

+ PERSONAL DETAILS

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Nationality Austrian

Year of birth 1984

+ OTHER SKILLS AND HOBBIES

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**Private Pilot** flying single engine airplanes out of Geneva International Airport

**Ethical Hacking** - CERN White Hat

**Private tutor** for aviation theory, mathematics, physics and mechanics

**Love mountain sports**, hiking, mountain biking, camping in the mountains

**Volunteer paramedic** with the Red Cross (in 2006)