

ELMAR RITSCH



COMPUTATIONAL PHYSICIST & SENIOR SOFTWARE ENGINEER

Innsbruck, Austria

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+ SUMMARY

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

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

2018-present **FREELANCE SOFTWARE ENGINEER**

Elmar Ritsch IT Services (self-employed), Innsbruck, Austria

Back-end C++ and Python software development for [Flightradar24 AB](#).

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

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

Mother tongue **German**

Foreign languages **English**
(first foreign language, level C1)

French
(second foreign language, level B1)

+ PERSONAL DETAILS

Nationality Austrian

Year of birth 1984

+ OTHER SKILLS AND HOBBIES

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)