



JOE RAYNER

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WORK EXPERIENCE

Ruder Bošković Institute

Senior Professional Associate (Software Engineer)

April 2025 - present

Center for Informatics and Computing

- HPC and AI software development support for scientific research.
- HPC/AI infrastructure development and administration.
- AI4Science infrastructure and pipeline development.
- Secure processing environment and sandbox design and administration.

Center for AI Safety

Facilitator

November 2025 - February 2026

AI Safety, Ethics, and Society Course

Nostos Genomics

Senior Data Scientist

February 2022 - September 2023

Computational Genomics

- Developed full stack software platform for diagnosis of rare genetic diseases.
- Developed and deployed Machine Learning models for genomics analysis.
- Led infrastructure and backend architecture development.

Illumina

Senior Informatics Support Scientist

April 2021 - November 2021

Commercial Bioinformatics

- Lead support engineer on cloud genomics platform.
- Developed custom multiomic analysis solutions for customers.
- Ran internal and external training for cloud genomics platform.

Centogene

Bioinformatics Software Engineer

June 2019 - March 2021

R&D Bioinformatics

- Conducted R&D of analysis pipelines for clinical diagnosis of genetic diseases.
- Managed software deployments and computational infrastructure.
- Designed and developed a cloud-based multiomics database used to both support production analysis and enable research projects.

Illumina

Software Engineer

February 2018 - May 2019

Illumina Lab Services

- Developed lab automation applications including data delivery, instrument scheduling and reagent tracking.
- Developed analysis pipelines.
- Provisioned and administered cloud infrastructure.
- Ran bioinformatics operations for the largest clinical DNA sequencing lab in the world.

Illumina

IT Engineer (initially intern)

April 2015 - January 2018

IT Product Development

- Designed the on and off board IT infrastructure for new DNA sequencing instruments.
- Developed and optimized analysis pipelines for HPC systems.
- Evaluated and benchmarked computation hardware.
- Administered HPC systems.

VOLUNTEERING

AI Safety Camp

Researcher

January 2025 - April 2025

Supervisor Nell Watson

Project Name: Exploring Rudimentary AI Value Steering with Ethical Frameworks and Custom Preferences Using Model Context

Description: Exploring methods to direct frontier LLM based agentic AI systems into safe and value-aligned behavior using a comprehensive ethical rubric and personal context. Particular focus on creating a safety policing sub-agent via directed generation, fine-tuning of foundation models and constitutional AI approaches.

EMPLOYMENT GAPS

Farmhouse renovation

September 2023 - April 2025

Purchased and renovated a farmhouse in Žumberak Nature Park near Zagreb.

During this period I also began reorienting my technical focus toward AI safety, completing two facilitated courses, the 10-day ML4Good bootcamp, and several independent software projects.

EDUCATION

University of Sussex (Department of Informatics)

September 2013 - September 2014

MSc in Evolutionary and Adaptive Systems, Grade: merit

Course summary: Scientific computing and artificial intelligence.

Core subject areas

- Object-oriented programming
- Mathematics and computational methods for complex systems
- Machine learning
- Scientific Modelling

Awards: Pegge scholarship

University of Edinburgh (School of Biological Sciences)

September 2007 - July 2011

BSc with Honours in Biological Sciences (Biotechnology), Grade: 2.1

Course summary: Cell and molecular biology with a focus on industrial applications of technologies including microbial biotechnology, genetic and cloning technologies, and novel approaches to drug design.

Core subject areas

- Biotechnology
- Molecular microbiology
- Systems biology
- Molecular cell biology
- Molecular genetics
- Pharmacology

LANGUAGES

English Native

German B1

Croatian A1

PUBLICATIONS

REFERENCES

Available on request.