

Mossa Merhi Reimert



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SUMMARY

Senior Scientific Software Engineer at [A2-Ai](#). PhD in Veterinary Epidemiology and MSc in Statistics from the University of Copenhagen, with additional undergraduate degrees in Mathematics (statistics major) and Science & IT (computational physics). Over a decade of experience spanning statistical modelling, scientific computing, academic research, teaching, and software development. Core maintainer of [extendr](#) and active open-source contributor in the Rust and R ecosystems. Published in journals including the Journal of Theoretical Biology, JOSS, and Preventive Veterinary Medicine, and presented at international conferences in veterinary epidemiology, spatial modelling, and scientific computing.

HIGHLIGHTS

- Build and maintain R and Rust tooling that needs to be fast, reliable, and ready for real use
- Bring a deep foundation in mathematics, probability theory, and statistics, from measure theory and stochastic processes to Bayesian inference and causal reasoning
- Turn research questions into statistical models and then into maintainable software
- Develop disease-spread models across wildlife and livestock populations, with work on spatial discretisation, surveillance, and control strategies
- Work effectively across institutions, disciplines, and international collaborations
- Teach and communicate effectively across researchers, developers, and students, from university courses to international conference talks

EDUCATION

PhD in Veterinary Epidemiology 2019–2024
University of Copenhagen

- Modelled the spread of African Swine Fever between wild boar and domestic pigs
- Worked on simulator-based inference, ordinary differential equations, and wildlife-livestock interface problems
- Relevant coursework included epidemiology, spatial data analysis, network analysis, and targeted maximum likelihood estimation

MSc in Statistics 2016–2018
University of Copenhagen

BSc in Mathematics 2013–2015
University of Copenhagen

Statistics as study major.

BSc in Science and IT 2010–2013
University of Copenhagen

Specialisation in computational physics.

EXPERIENCE

Senior Scientific Software Engineer 2025–Present
A2-Ai

- Build scientific software and technical workflows in domains where modelling, data, and product constraints meet
- Work across implementation, design, and collaboration boundaries to turn prototype code into maintainable systems

Postdoctoral Researcher 2024–2025
University of Copenhagen

- Specialised in computational modelling of disease spread, surveillance, and control in an economic context
- Developed modelling software and R packages for applied epidemiological research

External Lecturer Copenhagen · Spring 2025
DIS Study Abroad

- Taught "Artificial Neural Networks and Deep Learning"

Research Assistant 2021–2022
University of Copenhagen

- Worked on the NordForsk-funded DigiVet project on facilitating registry data between authorities, stakeholders, and citizens

- Coordinated data requirements across multiple stakeholders and improved data quality in research workflows

Lecturer / Researcher 2018–2019
Applied Science University of Amsterdam

- Conducted research in the Live Game Design project in collaboration with Knowingo+
- Modelled player experience using statistical methods and visualisation

Student Developer 2016–2017
Inference Labs

- Developed a serious game in Unity3D and C# for teaching the PRINCE2 project-management methodology

Data Scientist 2015–2016
SHFT ApS

- Transformed inertial motion sensor data into KPIs describing running technique
- Worked with MATLAB, signal processing, sensor fusion, visualisation, and C# / Xamarin

Teaching Assistant 2011–2018
University of Copenhagen

- Held TA roles across a seven-year span (2011–2018), totalling roughly two years of cumulative teaching alongside studies and other work
- Taught across databases and web programming, programming and problem solving, data mining, statistics, numerical analysis, and modelling
- Supported both undergraduate and graduate teaching, including theoretical statistics

Participant, Kod i Ferien 2011–2012
Danish Agency for Digitisation

- Participated twice in Kod i Ferien, a Danish programme comparable to Google Summer of Code
- Planned and implemented a web-backend product using Django and NemHandel
- Worked with open-government initiatives through digitaliser.dk

Student Worker 2010–2013
Danish Science Factory

- Planned and executed meetings, conferences, and related events
- Handled database entry and administrative support tasks

Sales Assistant 2010
Netto / Dansk Supermarked

PUBLICATIONS

Peer-reviewed

- **Modelling PRRS transmission between pig herds in Denmark and prediction of interventions impact (2025).** [doi:10.1016/j.prevetmed.2025.106692](https://doi.org/10.1016/j.prevetmed.2025.106692)
- **Choice of landscape discretisation method affects the inferred rate of spread in wildlife disease spread models (2025).** [doi:10.1016/j.jtbi.2024.111963](https://doi.org/10.1016/j.jtbi.2024.111963)
- **extendr: Frictionless bindings for R and Rust (2024).** [doi:10.21105/joss.06394](https://doi.org/10.21105/joss.06394)
- **Social network analysis reveals the failure of between-farm movement restrictions to reduce Salmonella transmission (2024).** [doi:10.3168/jds.2023-24554](https://doi.org/10.3168/jds.2023-24554)
- **Using registry data to identify individual dairy cows with abnormal patterns in routinely recorded somatic cell counts (2024).** [doi:10.1016/j.jtbi.2023.111718](https://doi.org/10.1016/j.jtbi.2023.111718)

Preprints and submitted

- **Assessing the Spatial and Temporal Risk of HPAIV Transmission to Danish Cattle via Wild Birds (2025).** [arXiv:2504.12432](https://arxiv.org/abs/2504.12432)
- **Spatial discretisation and anonymisation in R using CORINE land cover data and the hexscape package, with Matt Denwood, Mossa Merhi Reimert, Carlijn Bogaardt, Maya Katrin Gussmann, Carsten Thure Kirkeby and Jess Enright.** *Submitted to Preventive Veterinary Medicine.*

In preparation

- **Habitat-centric clustering of wildlife populations: methods and implications for the population dynamics of wild boar, with Mossa Merhi Reimert, Maya Katrin Gussmann, Anette Ella Boklund, Philip Rasmussen and Matt Denwood.** *In preparation for Ecological Modelling.*

RESEARCH SOFTWARE

extendr
github.com/extendr/extendr

Core maintainer · 2020–Present

Frictionless bindings between R and Rust. Core maintainer of the project and the wider tooling around the R-Rust bridge. Published in JOSS ([doi:10.21105/joss.06394](https://doi.org/10.21105/joss.06394)) and supported by an R Consortium ISC grant for modern OOP tooling.

A Rust-R interoperability framework for building R packages with Rust backends. Includes ExternalPtr wrappers, ALTREP support, and CRAN-ready packaging.

hexscape
R package

Co-author

Spatial discretisation and anonymisation in R using CORINE land cover data. Companion to the submitted Preventive Veterinary Medicine manuscript.

GRANTS

- Accepted by the R Consortium Infrastructure Steering Committee (ISC) for "**extendr: Modern OOP tools**" (2025), covering the vctrs/S3 Support and S7 Support milestones

TEACHING PORTFOLIO

External Lecturer, Artificial Neural Networks and Deep Learning
DIS Study Abroad

Copenhagen · Spring 2025

- Designed and delivered an upper-division course on artificial neural networks and deep learning for visiting international students
- Covered foundations through modern architectures, with hands-on implementation work alongside the theoretical material

Teaching Assistant
University of Copenhagen

2011–2018

Taught and supported a broad range of undergraduate and graduate courses in the Department of Mathematical Sciences and the Department of Computer Science, including:

- Databases and web programming
- Programming and problem solving
- Data mining
- Statistics 1 and 2 (theoretical statistics)
- Numerical analysis
- Modelling in science

Responsibilities spanned exercise sessions, problem-set design, grading, and one-on-one student support. Roughly two years of cumulative TA work spread across a seven-year span (2011–2018), held alongside studies and other roles.

CONFERENCES

Typst Meetup Berlin 2026
Typst

Berlin · 28 February 2026 · 14:30 CET

Attended.

Cascadia R Conf 2025
cascadiarconf.org

Portland, OR · 20 June 2025

Co-authored [workshop material](#) with Josiah Parry for two workshops: "[Intro to Rust for R Developers](#)" and "[Building Rust based R Packages](#)" using extendr.

Scientific Computing in Rust 2024
scientificcomputing.rs

18 July 2024 · Online

Talk: "extendr: Frictionless bindings for R and Rust." Live and online presentation (10 min). Hosted by organisers from University College London (UK) and University of Colorado Boulder (USA).

GeoVet 2023
Silvi Marina, Teramo, Italy

20 September 2023

Senior oral presentation (20 min + 5 min discussion): "Choice of Landscape Discretisation Affects the Rate of Spread in Wildlife Disease Models." International Conference of Spatial Epidemiology, Geostatistics and GIS applied to animal health, public health, and food safety.

ISVEE 16
Halifax, Canada

7–12 August 2022

Oral presentation: "An ecological process-based model of wild boar." 16th International Symposium of Veterinary Epidemiology and Economics.

ModAH 2021
INRAE, Nantes, France

2 July 2021 · Online

Talk: "Influence of ecological processes within disease models." Live presentation (webinar). Modelling in Animal Health conference.

Det 41. symposium i anvendt statistik
University of Copenhagen

28–30 January 2019

Attended. statistiksymposium.dk

SAFJR 2019

2019

Attended.

EXTERNAL ROLES

- Partner-sponsored developer at A2-Ai in the RSMF-backed project [Enabling the Next Generation of Contributors to R](#)

AWARDS

- Member of the winning team at Aarhus' COVID-19 Datathon (2021), a weekend-long data-analysis challenge hosted jointly by MIT, Imperial College London, and Aarhus University

SKILLS

R Rust Foreign Function Interface (FFI) Git & GitHub Actions MATLAB Python PyTorch C#
C / C++ Bash Typst Statistical modelling Scientific computing Technical teaching



COURSEWORK

MSc in Statistics 2016–2018 Discrete Models; Regression; Project in Statistics; Advanced Probability Theory 1; Advanced Probability Theory 2; Bayesian Statistics; Causality; Computational Statistics; Monte Carlo Methods in Insurance and Finance; Sparse Learning.

BSc in Mathematics 2013–2015 Discrete Mathematics; Probability Theory and Statistics; Algebra 1; Geometry 1; Analysis 2; Measures and Integrals; Statistics 1; Statistics 2; Stochastic Processes; Graphical Models.

BSc in Science & IT 2010–2013 Introduction to Mathematics for Science; Modelling in Science; Linear Algebra in Science; Programming and Problem Solving; Analysis 0; Algorithms and Data Structures; Databases and Data Mining; Statistical Models in Science; Introduction to Numerical Analysis; Numerical Solution of Differential Equations; Finite Difference Methods; Project Course: Science and IT; Philosophy of Computer Science; Electrodynamics and Waves; Quantum Mechanics 1; Introduction to Mechanics and Relativity Theory; Classical Mechanics; Thermodynamics and Project; Electromagnetism; Analytical Mechanics and Chaos; Analysis 1; Mathematics for Physicists.

ONLINE LEARNING

-  Completed 110 DataCamp courses, 9 tracks, and 37 projects across R, SQL, machine learning, and statistics ([portfolio](#))
-  Completed the Exercism Rust track with 83 problems and iterative review-driven refinement ([profile](#))

PERSONAL

- Father of two
- Avid collector of custom mechanical keyboards

LINKS

 [ORCID: 0009-0007-9297-1523](https://orcid.org/0009-0007-9297-1523) .  [GitHub](#) .  [LinkedIn](#) .  [DataCamp portfolio](#) .  [exercism Exercism profile](#)