SAMUEL ROESLIN

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PERSONAL STATEMENT

PhD-qualified risk modelling and analytics professional with experience spanning European disaster risk assessment, disaster loss data analytics and insurance analytics. Expertise in probabilistic risk modelling, geospatial analytics, empirical damage and loss modelling, and machine learning. Experienced in scientific project leadership, coordinating multidisciplinary technical teams and translating complex scientific methodologies into decision-relevant analytics. International experience across Europe and New Zealand, with professional proficiency in English, German and French.

PROFESSIONAL EXPERIENCE

European Commission - Joint Research Centre (JRC) July 2023 - Present
Scientific Project Officer - Risk Data Hub (RDH) *Ispra, Italy*

Directorate E – Societal Resilience and Security, Unit E.1 Disaster Risk Management,
Disaster Risk Management Knowledge Centre (DRMKC), Risk Analytics team

- Co-lead the scientific and day-to-day delivery of the Risk Data Hub, providing scientific oversight and coordinating priorities and implementation with a multidisciplinary technical team comprising a data scientist and two software developers.
- Co-developed a probabilistic risk assessment methodology for Europe, integrating probabilistic hazard and exposure data (population and built infrastructure) to estimate Expected Annual Loss (EAL), and incorporating vulnerability modelling to compute disaster risk.
- Provide scientific oversight for the collection, harmonisation and analysis of historical disaster-loss data from multiple sources, including methods for NUTS-level spatial disaggregation and delivery of harmonised loss information through the Risk Data Hub's analytical tools.
- Led scientific requirements for redesigning the RDH disaster-loss data architecture, working with developers to implement a PostgreSQL-based DEV/TEST/PROD environment.
- Shape the Risk Data Hub's scientific and technical roadmap, contributing to work-package definition and technical specifications under Administrative Agreements, monitoring delivery and reporting progress to internal leadership and funding DGs.
- Represent the Risk Data Hub (RDH) in stakeholder engagement and knowledge exchange with European Commission DGs, EU-funded projects and the wider disaster-risk community, communicating scientific methods and results to technical, policy and non-technical audiences.

Tower Insurance Aug 2021 - Mar 2023
Analytics Specialist *Auckland, New Zealand*

- Delivered analytical insights and data extracts to underwriting and pricing teams, supporting business decision-making.
- Developed and enhanced Power BI reporting solutions, integrating internal Snowflake data with external datasets to provide decision-relevant insights to business stakeholders.
- Prepared and engineered training data for a machine-learning customer churn model, supporting predictive modelling for customer retention.

Beca Group Limited Mar 2021 - Jul 2021
AI Researcher *Auckland, New Zealand*

- Developed conversational AI solutions and bespoke digital interfaces for client projects, translating stakeholder and community requirements into applied technology solutions.

EDUCATION

The University of Auckland — Jan 2017 - Sep 2022
Doctor of Philosophy (PhD), Civil Engineering — *Auckland, New Zealand*

Regensburg University of Applied Sciences — Mar 2014 - Feb 2016
Master of Engineering (M. Eng.), Civil Engineering — *Regensburg, Germany*

Karlsruhe UAS, FHNW & IUT Robert Schuman Illkirch — Sep 2010 - Feb 2014
Bachelor of Engineering (B. Eng.), Civil Engineering — *Germany, Switzerland, France*

SELECTED RESEARCH EXPERIENCE

Seismic damage and loss prediction using empirical data — Jan 2017 - Jan 2021
Doctoral research conducted at The University of Auckland, New Zealand

- Thesis: Predicting Seismic Damage and Loss for Residential Buildings using Data Science
- PhD research on data-driven seismic damage and loss modelling for residential building portfolios, integrating catastrophe-risk, geospatial and machine-learning methods.
- Developed a seismic damage prediction model for residential buildings in Mexico City, using empirical observations from the 2017 Puebla-Morelos earthquake.
- Developed a seismic loss prediction model for Christchurch using residential insurance claims from New Zealand's Earthquake Commission (EQC), integrating seismic demand, geospatial, building and third-party datasets and applying machine-learning classification in Python/scikit-learn.

SELECTED PUBLICATIONS

Journal articles

- Sibilia, A., Eklund, G., Marzi, S., Valli, I., Bountzouklis, C., **Roeslin, S.**, ... & Corbane, C. (2024). Developing a multi-level european-wide composite indicator to assess vulnerability dynamics across time and space. International Journal of Disaster Risk Reduction, 113, 104885. *doi.org*/10.1016/*j.ijdrr*.2024.104885
- **Roeslin, S.**, et al. (2023). Development of a Seismic Loss Prediction Model for Residential Buildings using Machine Learning - Christchurch, New Zealand. Natural Hazards and Earth System Sciences (NHESS). *doi.org*/10.5194/$nhess - 23 - 1207 - 2023$
- **Roeslin, S.**, et al. (2020). A machine learning damage prediction model for the 2017 Puebla-Morelos, Mexico, earthquake. Earthquake Spectra, 36(S2), 314–339. *doi.org*/10.1177/8755293020936714

Datasets

- **Roeslin, Samuel**; Salari, Sandro; Rodomonti, Davide; Sibilia, Andrea; Bountzouklis, Christos; Corbane, Christina (2025): Disaster losses. European Commission, Joint Research Centre [Dataset] doi: 10.2905/$JRC.DSZ3GW0$ PID: http://data.europa.eu/89h/0030f450-6f4f-40c5-9390-66bb11dc2442

TECHNICAL & LANGUAGE SKILLS

Analytics	Risk assessment, Geospatial analytics	**Data & Programming**	Python, SQL, ML
GIS & BI	ArcGIS, QGIS, Power BI	**Development**	GitLab, GitHub

French	Native Language	**English**	C1 - Full professional proficiency
German	C1 - Full professional proficiency	**Italian**	A2 - Elementary proficiency