SAMUEL ROESLIN

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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 University of Applied Sciences — Feb 2013 - Feb 2014 (3rd year)
Bachelor of Engineering (B. Eng.), Civil Engineering — *Karlsruhe, Germany*

University of Applied Sciences Northwestern Switzerland — Sep 2011 - Jun 2012 (2nd year)
Bachelor of Science (B. Sc.), Civil Engineering — *Muttenz, Switzerland*

Robert Schuman University Institute of Technology — Sep 2010 - Jun 2011 (1st year)
Professional bachelor's degree (Licence Professionnelle), Civil Engineering — *Illkirch, France*

PROFESSIONAL EXPERIENCE

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

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

- Scientific work and dissemination of information related to the Risk Data Hub (RDH)
- Collection, harmonisation, and disaggregation of historical disaster loss data in Europe
- Computation of disaster risk for Europe using information on hazard, exposure, and vulnerability

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

- Extracted and prepared training data for the development of a ML model to predict customer churn.
- Maintained, improved, and developed Power BI reports for internal stakeholders. Queried internal databases using Snowflake. Enriched reports with third-party data.
- Provided regular and ad-hoc analytical insights and data extracts for the underwriting and pricing team.

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

- Developed conversational agents and bespoke interfaces that enhance community engagement across a variety of situations to meet the needs of different clients, stakeholders, and communities.

The University of Auckland — Mar 2017 - Jul 2020
Graduate Teaching Assistant — *Auckland, New Zealand*

- Tutored CIVIL 210 Introduction to Structures (basic concepts of structural behavior; equilibrium, concept of free body diagram; Limit State design; elementary elasticity; engineering beam theory).
- Led the development of teaching material designed for Structures Day (full day of hands-on structural experiments to demonstrate structural engineering concepts to 300 undergraduate students).
- Managed a team of twelve graduate teaching assistants.

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
- Developed a damage prediction model for the Roma and Condesa neighborhoods in Mexico City.
- Developed a loss prediction model for residential buildings in Christchurch using claim insurance data of residential buildings obtained from the Earthquake Commission (EQC). Collected additional data from private and open-access databases. Merged spatial and non-spatial data (ArcMap, Python). Filtered and preprocessed the merged dataset. Applied machine learning for classification using the scikit-learn library.

Reconnaissance mission – 2017 Puebla earthquake Oct 2017 - Nov 2017
Field research, Mexico City, Mexico

- Assessed building damage in Mexico City following the September 19th, 2017 Puebla earthquake.

Seismic design of a diagrid system May 2015 - Oct 2015
Master's research conducted at the Universidad Autónoma Metropolitana Azcapotzalco, Mexico

- Thesis: Use of Diagonal Grids (diagrids) as an Earthquake-Resistant System for Tall Buildings Having a Circular Plan

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. (2022). 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/$nhess - 2022 - 227$
- **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

AWARDS AND HONORS

1st place at TakiWaehere - The New Zealand Geospatial Hackathon - Team the AUNTS Apr 2021
Scholarship - Otto Helmut und Alice Eckl Foundation Dec 2015

COMPUTER & LANGUAGE SKILLS

COMPUTER

Language	Python, SQL	**GIS**	ArcGIS, QGIS	**BI**	Power BI, ArcGIS Dashboard
ML	scikit-learn	**Git**	GitHub, Bitbucket	**Text**	Word, Latex

LANGUAGES

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

REFERENCES

Dr Christina Corbane	Leader of DRMKC	christina.corbane@ec.europa.eu	+39 033278-3545
Dr Quincy Ma	PhD Supervisor	q.ma@auckland.ac.nz	+64 9 923 8766