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Locational Analysis Optimisation Research Internship in Climate Adaptation

Mitigate - Oslo, Norway - English

WHO WE ARE

Mitigate is a climate tech start-up founded in **June 2021**, building software **for insurance companies** to protect properties from **physical climate risks** such as floods, landslides, or heat. Within the last nine months, Mitigate has secured investments from venture capital investment funds, established partnerships with large insurance companies and built up a world-class multi-disciplinary group of experts. The team you will be part of for your internship counts **nine employees and ten nationalities**, and we offer a very fast-paced environment for our employees to learn and grow. **A successful internship will result in a permanent employment offer to join Mitigate.**

TEAM x INCLUSION x DIVERSITY

Aleksander Lund
Co-founder & CEO
Business

Laurent Feuilleaubois
Co-founder & CPO
Geophysics

Radek Duda
Co-founder & CTO
Software Engineer

Ghazal Moghaddam
Natural Hazards
Specialist

Vishal Devanand
NBS
Specialist

Alexander Schaub
Geomatics
Data Analyst

Vitalij Kačanovskij
UX/UI
Designer

Paulo Borges
Operational
Researcher

Laddaporn Ruangpan
NBS Co-Benefits
Researcher

CONTEXT

Physical climate risk is characterised by the material threat of a physical asset such as a building to natural hazards. To correctly assess this risk, it is essential to consider both the **asset's exposure and vulnerability to any given hazard**. We use a combination of data sources, including **climate models, satellite images, geological and hydrological datasets**, to characterise the risk of each property.

Numerous measures can be applied to reduce risk. Such measures can be applied to the building or the surrounding area. However, each is associated with a **specific cost and efficiency and comes with physical limitations**. Our objective is to find the optimal set of



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complementary measures that can be applied to a given property or group of properties to reduce this risk.

We have secured research funding in partnership with **NGI** (Norwegian Geotechnical Institute) to work on this multi-objective optimisation problem throughout 2022. Your internship is an integral part of the project. Therefore, you will be exposed to both the commercial and research sides of the business.

WHAT YOU WILL DO

- Participate in a team effort on **problem formulation** of the multi-objective locational optimisation challenge applied to water run-off management
- Define hypothesis, perform independent research and make recommendations to **define cost functions**
- Designing and implementing **constraints** based on pre-existing suitability information
- **Testing and validating algorithms** to perform compelling predictions
- Take part in the search for new models in innovative optimisation
- Participate in team strategy to **test the quality of the results** concerning risk reduction

TECHNOLOGY

- Operational research, preferably in **multi-objective locational analysis optimisation problems** with exposure to **genetic algorithms** (NSGA-II or similar)
- **Python** or C++
- **SQL-based databases**
- Solvers (CPLEX or similar)
- Cloud-based infrastructure (Amazon AWS, Google Cloud Engine)
- **Previous exposure to spatial, spatiotemporal modelling and GIS is appreciated**

WHO YOU ARE

- Background in **Mathematics** or Data Science, AI, Computer Science, Software Engineering or similar
- You have a strong interest in **climate and sustainability**
- **Curious to learn new skills** and be part of a growing start-up
- Ambitious, pragmatic and proactive
- Down to earth, you like to work in a small team and have **strong communication skills**
- You think it is vital to work in a **diverse and accepting environment**
- **Fluent in English**

The offered package is 15,000 NOK/month for a 5 to 6-month internship. The position is based in Oslo at **StartupLab, the largest and leading start-up incubator in Norway** (Forskningsparken tube station).

To apply: jobs@mitigate.com