The Engineering Risk Analysis Group at TUM is looking to fill a

PhD position on **Probabilistic spatial data modeling for community risk management**

About the ERA group at TUM:

The Engineering Risk Analysis Group (www.cee.ed.tum.de/era/) develops and implements uncertainty quantification, engineering reliability, risk & decision analysis to enhance optimal & sustainable decision-making for civil systems and the environment.

About the FOURIER project:

The PhD position is part of the FOURIER project on Artificial Intelligence for monitoring and maintaining large-scale complex infrastructures. The objective of FOURIER is to train the next generation of multidisciplinary researchers who will develop innovative techniques for AI-based management of civil systems. The FOURIER Doctoral Network funded by the European Commission's Horizon 2023 Marie Skłodowska-Curie Action (MSCA) consists of leading academic institutions and leading industry partners from 8 European countries (Austria, Croatia, Italy, Germany, Greece, Switzerland, Netherlands and Portugal).

Your profile:

- M.Sc. degree in engineering, applied mathematics, computer sciences or related fields.
- Excellent analytical skills, strong interest and capabilities in quantitative analysis
- Experience with stochastic methods and spatial data analysis. Additional relevant experiences, such as risk analysis, are a plus
- Experience in programming in Python, MATLAB, C/C++ or equivalent
- Proficiency in English (both written and oral), German is a plus
- Strong communication skills
- You have **not** resided or carried out your main activity in Germany for more than 12 months within the last 3 years (this is required by the MSCA rules, to enhance mobility among researchers in Europe).

The position

- We offer a PhD position funded for 3 three years by an MSCA scholarship with competitive conditions.
- The PhD project will develop a probabilistic digital twin framework for risk and resilience management of urban areas for natural or man-made fire hazard. A particular focus will be set on the representation of knowledge uncertainty in geographical information systems and their impact on optimal decision-making for risk management. The developed framework will consistently account for uncertainties when combining existing spatial data repositories with information from satellites, urban monitoring systems and other sources using a Bayesian framework.
- The PhD student will have secondments at MATRISK (CH) and TU Delft (NL).
- The earliest starting date is June 1, 2025, later starting dates are possible.
- The successful candidates will be enrolled in the doctoral program of the Technical University of Munich.
- You can expect a dynamic and flexible work environment in a multi-disciplinary, international team with an inclusive and supportive culture. We are located in the center of Munich.

The FOURIER Doctoral Network

We offer you the opportunity become part of the FOURIER Doctoral Network, which will not only facilitate fifteen doctoral candidates in reaching a high level of technical and project-specific excellence but will also provide you with many opportunities for developing skills that are transferable to a broader landscape of opportunities. You will have the opportunity to visit and collaborate with industry and other academic institutions within the consortium. After completing the program, you will have a thorough understanding of the process from research via innovation to industry implementation and a strong career-defining network.

Application

- Applications should include your CV, electronic copies of your academic diplomas and a short cover letter (max. one page), explaining your interest in the position and your relevant skills and experience.
- Applications should be sent as single PDF file to applications.era@ed.tum.de
- Applications will be continuously reviewed.
- People with disabilities, with essentially the same suitability and qualifications, will be preferred.
- By submitting your application to the Technical University of Munich (TUM), you also confirm that you have taken note of the data protection information of the TUM according to Art. 13 Data Protection Basic Regulation (DSGVO) on the collection and processing of personal data in connection with your application.