Opis raziskovalnega dela *(Research work description)*

1. Članica UL (*UL member*):

Fakulteta za gradbeništvo in geodezijo / Faculty of Civil and Geodetic Engineering

2. Ime, priimek in elektronski naslov mentorja/ice (*Mentor's name, surname and email*):

Mateja Škerjanec, mateja.skerjanec@fgg.uni-lj.si

3. Raziskovalno področje (*Research field*):

2.20 Vodarstvo (2.20 Hydrology)

4. Opis raziskovalnega dela *(Research work description)*:
Vključuje morebitne dodatne pogoje, ki jih mora izpolnjevati kandidat/ka za mladega raziskovalca/ko, ki niso navedeni v razpisu za mlade raziskovalce *(It includes any additional conditions that the candidate for a young researcher must meet, which are not listed in the call to tender for young researchers.)*.

Slov.:

Mladi raziskovalec oz. raziskovalka (MR) se bo usposabljal/-a v okviru raziskovalnega programa Vodarstvo in geotehnika: orodja in metode za analize in simulacije procesov ter razvoj tehnologij (P2-0180). Program združuje inženirske (tehniške) in naravoslovne vsebine s področja voda in vodarstva ter zagotavlja interdisciplinarno raziskovalno okolje. MR bo imel/-a priložnost sodelovati tudi pri domačih in mednarodnih raziskovalnih projektih ter strokovnih nalogah, ki potekajo na Oddelku za okoljsko gradbeništvo UL FGG.

Raziskovalno delo MR bo usmerjeno na področje celostnega upravljanja voda, pri čemer bo vsebinsko prilagojeno predznanju, interesom in strokovnim usmeritvam kandidata oz. kandidatke. Obravnavane teme lahko vključujejo raziskave na področju zagotavljanja dobrega stanja voda, usklajevanja različnih rab vode ter varstva pred škodljivim delovanjem voda, ob upoštevanju podnebnih sprememb in človekovih vplivov. Osrednji poudarek raziskave bo na matematičnem modeliranju okoljskih procesov v povezavi z naprednimi metodami strojnega učenja, predvidene pa so tudi laboratorijske in/ali terenske meritve.

Prednostni profil MR je izobrazba magistrske stopnje s področja inženirskih znanosti (npr. vodarstvo, okoljsko inženirstvo, gradbeništvo, geodezija, strojništvo, gozdarstvo) ali naravoslovja (npr. uporabna fizika). Zaželene so izkušnje s pisanjem znanstvenih člankov, poglobljeno znanje hidrologije, hidravlike in zaščite voda, poznavanje merilnih tehnik ter praktična znanja za izvedbo raziskave na izbrano temo disertacije.

Pričakujejo se motiviranost za raziskovalno delo, samostojnost, samoiniciativnost, inovativnost, komunikativnost ter sposobnost timskega dela. Kandidat oz. kandidatka naj ima dobro pisno in bralno znanje angleškega jezika, znanje programiranja (npr. Matlab, Python ali sorodni jeziki) ter zanimanje za uporabo metod umetne inteligence in strojnega učenja. Predviden je vpis na doktorski študijski program Grajeno okolje ali Varstvo okolja.

Zaželeno je tudi ustrezno dokazilo o aktivnem znanju angleškega jezika.

Eng.:

A young researcher (MR) will be trained within the research programme Water Science and Technology, and Geotechnical Engineering: Tools and Methods for Process Analyses and Simulations, and Development of Technologies (P2-0180). The programme integrates engineering (technical) and natural science topics in the fields of water and water science, providing an interdisciplinary research environment. The MR will also have the opportunity to participate in national and international research and applied projects at the University of Ljubljana, Faculty of Civil and Geodetic Engineering, Department of Environmental Civil Engineering.

The research work will focus on Integrated Water Resources Management and will be tailored to the candidate's prior knowledge, interests, and professional orientation. The topics addressed may include research in the fields of ensuring good water status, balancing different water uses, and protection against the negative effects of water, considering also climate change and the impact of human activities. The primary focus of the research will be on the mathematical modelling of environmental processes in combination with advanced machine learning methods. Laboratory and/or field measurements are also foreseen.

The preferred candidate profile includes a Master's degree in engineering (e.g., water science, environmental engineering, civil engineering, geodesy, mechanical engineering, forestry) or natural sciences (e.g., applied physics). Experience in scientific writing, in-depth knowledge of hydrology, hydraulics, and water protection, familiarity with measurement techniques, and practical skills needed for conducting research related to the chosen PhD topic are considered beneficial.

Candidates are expected to demonstrate motivation for research work, independence, self-initiative, creativity, good communication skills, and the ability to work in a team. Proficiency in written and reading English, programming skills (e.g., Matlab, Python, or similar languages), and an interest in artificial intelligence and machine learning methods are required. Enrolment into the PhD study programmes of Built Environment or Environmental Protection is anticipated.

Proof of active knowledge of the English language is also desirable.

5. Priloge, ki jih je treba priložiti ob prijavi *(Documents required to be submitted with the application)*:

☒ **potrdilo o doseženi izobrazbi** *(proof of completed education)*

- kandidat z zaključenim magistrskim študijskim programom (2. bolonjska stopnja)
(candidate who has completed a Master's degree (2nd Bologna level)):

  o diplomska listina / potrdilo o zaključku študijskega programa
  (diploma certificate / certificate of completion of the study programme)

  o priloga k diplomi / potrdilo o opravljenih obveznostih
  (diploma supplement / official transcript of records containing all grades obtained in the study programme)

- kandidat, ki še ni zaključil študija na 2. stopnji
(candidate who has not yet completed a Master's degree):

  o potrdilo o do sedaj opravljenih obveznostih z ocenami magistrskega študijskega programa, s katerim se bo kandidat prijavil na doktorski študij
  (official transcript of records listing all courses and grades obtained so far in the Master's degree programme on the basis of which the candidate will apply for enrollment in a doctoral degree programme.)

☐ **nagrade –** univerzitetna Prešernova nagrada ali Prešernova nagrada članice Univerze v Ljubljani oz. druga enakovredna nagrada *(awards, e.g. Prešeren Prize of the University of Ljubljana, Prešeren Prize of a University of Ljubljana member and/or another equivalent award))*

☒ **bibliografija** *(bibliography)*

☒ **življenjepis** *(CV)*

☒ **motivacijsko pismo** *(motivation letter)*

☒ **opis dosedanjega sodelovanja pri raziskovalnem delu** *(description of the candidate's research work)*

☐ **osnutek idejne zasnove raziskovalnega dela** *(preliminary research proposal)*

☒ **priporočilno pismo** *(letter of recommendation)*

☐ **druge priloge** *(other attachments)*: