Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*

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*):

Boštjan Brank, bbrank@fgg.uni-lj.si

3. Raziskovalno področje (*Research field*):

Numerična mehanika / Monitoring stanja infrastrukturnega objekta Computational mechanics / Structural health monitoring

4. Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*:
Vključuje morebitne dodatne pogoje, ki jih mora izpolnjevati kandidat/ka za mladega raziskovalca/ko, ki niso navedeni v razpisu za mlade raziskovalce.

Mladi raziskovalec bo delal na eni od naslednjih tem:

A. **Priprava numeričnih modelov za simulacijo nelinearnega in neelastičnega obnašanja konstrukcij in materialov.** Izpeljava teoretičnih modelov in računalniška implementacija pripadajočih algoritmov. Modeli se nanašajo pretežno na tankostenske ukrivljene konstrukcije, predvsem na opis nastanka in širjenja razpok in postopne popolne odpovedi konstrukcije.

B. **Priprava in vzdrževanje digitalnih dvojčkov infrastrukturnih objektov.** Digitalni dvojčki se kreirajo s kombiniranjem izmerjenih podatkov, metodami umetne inteligence in metodo končnih elementov. Za kalibracijo numeričnega modela se uporabljajo verjetnostne metode.

C. **Hitra ocena stanja infrastrukturnih objektov.** Hitra ocena stanja infrastrukturnega objekta (npr. mostu) zahteva izvedbo geodetskih meritev (z laserjem in/ali fotogrametrijo) in pretvorbo meritev v CAD in/ali BIM objekte ter v uporabno mrežo končnih elementov. Vibracijske meritve in njihova uporaba za probabilistično kalibracijo numeričnega modela so tudi del procesa, prav tako pa tudi več vrst numeričnih analiz.

Dodatni pogoji za zaposlitev mladega raziskovalca:

- Zaključena 2. stopnja inženirskega študija (gradbeništva, strojništva, računalništva ali podobne smeri), fizike ali matematike.

Želena znanja:

- Vsaj osnovno znanje slovenščine.
- Odlično znanje angleščine.
- Solidno znanje metode končnih elementov in numerične analize konstrukcij.
- Osnovne znanje s področja umetne inteligence.

The young researcher will work on one of the following two topics:

A. **Preparation of numerical models for the simulation of non-linear and inelastic behavior of structures and materials.** Derivation of theoretical models and computer implementation of associated algorithms. The models refer mainly to thin-walled structures, mainly to the description of the formation and propagation of cracks and the gradual complete structural failure.

B. **Preparation and maintenance of digital twins of infrastructure facilities**. Digital twins are created by combining measured data, artificial intelligence methods and the finite element method. Probabilistic methods are used to calibrate the numerical model.

C. **Fast assessment of health state of infrastructure facilities.** A fast assessment of the state of an infrastructure object (e.g. a bridge) requires converting geodetic measurements (with laser and/or photogrammetry) into CAD and/or BIM entities, and finally into a useful mesh of finite elements. Performance of vibration measurements and their use for probabilistic calibration of numerical model are also part of the process, as well as several numerical analyses.

Additional conditions for employment of a young researcher:

- Completed master degree in engineering (e.g. civil engineering, mechanical engineering, computer science or similar programme), physics or mathematics.

Desired skills:

- Basic knowledge of Slovenian.
- Excellent knowledge of English.
- Solid knowledge of the finite element method and numerical analysis of structures.
- Basic knowledge on artificial intelligence methods.

Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*

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*):

Matjaž Dolšek, matjaz.dolsek@fgg.uni-lj.si

3. Raziskovalno področje (*Research field*):

Gradbeništvo / Civil Engineering

4. Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*:
Vključuje morebitne dodatne pogoje, ki jih mora izpolnjevati kandidat/ka za mladega raziskovalca/ko, ki niso navedeni v razpisu za mlade raziskovalce.

slo: Delovno mesto mladega raziskovalca oz. mlade raziskovalke na področju gradbeništva/potresnega inženirstva vključuje interdisciplinarni pristop k raziskovanju, kar je v skladu z nedavno sprejeto resolucijo o krepitvi potresne varnosti do leta 2050. Glavni cilj je pripraviti družbo na bodoče potrese in zaščititi ljudi ter grajeno okolje, ob upoštevanju raznolikosti obstoječega stavbnega fonda in hitrega razvoja novih konstrukcijskih sistemov in materialov. Mladi raziskovalec se bo usposabljal na doktorskem študiju Grajeno okolje na Fakulteti za gradbeništvo in geodezijo, Univerza v Ljubljani, z možnostjo izpopolnjevanja na uglednih institucijah po svetu. Tema doktorske disertacije mladega raziskovalca bo usklajena z raziskavami programske skupine Potresno inženirstvo (P2-0185), ki sodeluje v mednarodnih projektih in združenjih, kar bo zagotavljalo, da bodo raziskave aktualne in usklajene z raziskavami po svetu. Raziskave mladega raziskovalca bodo usmerjene v eno izmed naslednjih tem: izboljšanje postopkov projektiranja novih objektov ali potresne utrditve obstoječih objektov, prispevanje k razvoju novega standarda za potresno odporno projektiranje konstrukcij Evrokod 8, razvoj postopkov za krepitev potresne varnosti v družbi, načrtovanje življenjske dobe objektov in s tem povezano projektno potresno obtežbo ter druge relevantne teme, ki so povezane s področjem krepitve potresne odpornosti družbe. Kandidat mora izpolnjevati vse kriterije iz razpisa. Zaželena je magistrska izobrazba s področja gradbeništva, ni pa nujna, ter izkazan interes za raziskovanje s področja potresnega inženirstva, gradbeništva ali drugih ved, ki jih povezuje potresno inženirstvo. Dodatne informacije lahko dobite na naslovu mdolsek@fgg.uni-lj.si.

eng: The position of a young researcher in the field of civil engineering/earthquake engineering involves an interdisciplinary approach to research, aligning with the recently adopted resolution on strengthening earthquake safety by 2050. The primary goal is to prepare society for future earthquakes and protect people and built environments, considering the diversity of existing building stock and rapid development in new construction technology and materials. The young researcher will undergo training within the doctoral program Built Environment at the Faculty of Civil and Geodetic Engineering, University of Ljubljana, with opportunities for further development at prestigious institutions worldwide. The topic of the young researcher's doctoral dissertation will be coordinated with the research conducted by the Earthquake Engineering research program (P2-0185), engaged in international projects and associations, ensuring that the research remains current and aligned with global efforts. The research of the young researcher will focus on one of the following topics: improving procedures for designing new structures or retrofitting existing ones for seismic resilience, contributing to the development of new standards for the earthquake-resistant design of structure Eurocode 8, developing procedures to enhance seismic safety within society, designing the lifespan of structures and its associated design seismic actions, and other relevant topics related to strengthening societal earthquake resilience.

Candidates must meet all the criteria outlined in the call for applications. While a master's degree in civil engineering is preferred, it is not mandatory, provided the candidate demonstrates a keen interest in research related to seismic engineering, civil engineering, or related disciplines. For further information, please contact mdolsek@fgg.uni-lj.si.

Opis delovnega mesta mladega raziskovalca/ke (*Description of the Young Researcher's position*)

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*):

Matjaž Mikoš, matjaz.mikos@fgg.uni-lj.si

3. Raziskovalno področje (R*esearch field*):

Vodarstvo (*Hydrology*)

4. Opis delovnega mesta mladega raziskovalca/ke (*Description of the Young Researcher's position*): Vključuje morebitne dodatne pogoje, ki jih mora izpolnjevati kandidat/ka za mladeg raziskovalca/ko, ki niso navedeni v razpisu za mlade raziskovalce

slo: Mladi raziskovalec/ka (MR) se bo usposabljal/a z raziskovalnim delom v okviru raziskovalnega programa P2-0180 Vodarstvo in geotehnika: orodja in metode za analize in simulacije procesov ter razvoj tehnologij (www.fgg.uni-lj.si/raziskovalna-dejavnost/programske-skupine/). Previdено področje raziskovanja je hidravlično inženirstvo. Doktorska disertacija bo usmerjena v raziskovanje abrazijske odpornosti mineralnih agregatov (rečnih sedimentov) v laboratorijskih/ naravnih pogojih in simulacije njihovih zrnavostnih/morfoloških sprememb na ravni porečij. Pričakovani strokovni profil MR je magistrska izobrazba na področju inženirskih znanosti (vodarstvo, gradbeništvo, strojništvo) ali naravoslovja (uporabna fizika). V okviru dela na doktorski disertaciji bo MR lahko sodeloval pri aktivnostih Unesco katedre za zmanjševanje tveganja vodnih ujm (www.unesco-floods.eu) in Raziskovalnega inštituta za geo in hidro tveganja (RIGHT) ter delal v Laboratoriju za agregate. Prednost pri izbiri bodo imeli kandidati s poglobljenim teoretičnim znanjem s področja predlagane disertacije in posebnimi praktičnimi znanji za izvedbo eksperimentalnega dela disertacije (eksperiment, laboratorij, terensko delo) ali simulacijskih numeričnih metod (Matlab, SIMULINK). Predviden je vpis na doktorski študij Grajeno okolje.

eng: *Young Researcher (MR) will be trained through research work in the framework of the Research Programme P2-1080 Water Science and Technology, and Geotechnical Engineering: Tools and Methods for Process Analyses and Simulations, and Development of Technologies (www.en.fgg.uni-lj.si/research/research-programmes/).* *The planned field of research is hydraulic engineering. The doctoral thesis will focus on research of abrasion resistance of coarse mineral aggregates (river sediments) in laboratory/natural conditions, and to simulations of their granulometric/morphological changes on the river basin scale.* *Expected MR professional profile is a MSc degree in engineering sciences (water sciences, civil engineering, mechanical engineering) or natural sciences (applied physics). As a part of the doctoral thesis MR will participate in the activities of the UNESCO Chair for water-related disaster risk reductions (www.unesco-floods.eu) and the Research Institute for Geo and Hydro-threats (RIGHT), and will work in the Laboratory for Aggregates.* *Priority in the selection of candidates will be given to in-depth theoretical knowledge in the field of the dissertation and specific practical skills to carry out the experimental work of the dissertation (experiment, laboratory, field work) or simulation numerical methods (Matlab, SIMULINK). Foreseen is the enrolment into the doctoral studies Built Environment.*

Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*

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*):

Sara Piculin, sara.piculin@fgg.uni-lj.si

3. Raziskovalno področje (*Research field*):

2.01 Gradbeništvo (Civil Engineering)

4. Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*:
Vključuje morebitne dodatne pogoje, ki jih mora izpolnjevati kandidat/ka za mladega raziskovalca/ko, ki niso navedeni v razpisu za mlade raziskovalce.

slo: Bodoči mladi raziskovalec/ka bo raziskovalno delo opravljal/a v okviru raziskovalne skupine Gradbene konstrukcije in gradbena fizika, ki pokriva področje numeričnega in eksperimentalnega modeliranja ter projektiranja jeklenih, masivnih in lesenih konstrukcij. Bodoči pristopi k načrtovanju konstrukcij bodo zahtevali materiale oziroma konstrukcijske sisteme, ki se bodo aktivno odzivali v času in prostoru na dane obremenitve. Razvoj metod na področju 3D tiska kovin odpira nove možnosti aplikacije sodobnih tehnologij v konstrukcijah, zlasti v smislu namensko zasnovane notranje strukture, ki omogoča optimalne lastnosti konstrukcije in konstrukcijskih elementov glede na njihov namen. Sodobno gradbeništvo vključuje uporabo metamaterialov in funkcionalno gradientnih materialov ter pametnih materialov in konstrukcij. Razvoj novih materialov in konstrukcij je tesno povezan z metodami umetne inteligence, ki so trenutno v samem središču razvoja numeričnih metod, saj predstavljajo osnovo visokotehnoloških rešitev. Usposabljanje bodočega mladega raziskovalca/ke bo zajemalo zgoraj naštete sodobne metode in tehnologije, od uporabe naprednega numeričnega modeliranja ter metod umetne inteligence, do eksperimentalnega dela v laboratoriju in 3D tiska jeklenih konstrukcijskih elementov. Programska skupina je ena vodilnih raziskovalnih skupin na področju razvoja tehničnih standardov in eksperimentalnih metod pri analizi konstrukcijskih rešitev, kar bo dobra osnova za dosego zastavljenih ciljev. Dolgoletno sodelovanje z evropskim tehničnimi univerzami, kot so Univerzi v Pavii, Tehniška univerza v Delftu, Univerza v Budimpešti, Univerza v Stuttgartu, center za numerično modeliranje na Univerzi v Hannovru, idr. bo dalo kandidatu/ki možnost izvedbe dela usposabljanja v tujini. Splošnost uporabljenih numerično-eksperimentalnih metod ter široka znanja v programski skupini, bodo omogočala kandidatu/ki, da si, v dogovoru z mentorjem, izbere konkretne cilje in poudarke raziskav, ki bodo tako lahko osnova tudi za kandidatovo bodočo strokovno ali raziskovalno kariero. Vabljeni so kandidati/ke s področja tehnike ali naravoslovja.

eng: The future young researcher will carry out his/her research work in the research group Building Structures and Building Physics, which covers the field of numerical and experimental modeling and design of steel, concrete and timber structures. Future approaches to structural design require materials or structural systems that will actively respond in time and space to given loads. The development of methods in the field of 3D printing of metals opens up new possibilities for the use of modern technologies in structures, especially in the production of materials and structures whose internal structure is specifically designed to have optimal properties depending on their purpose. Today's construction industry includes the use of metamaterials, functionally gradient materials and intelligent materials and structures. The development of new materials and structural elements is closely linked to artificial intelligence methods, which are currently at the center of the development of numerical methods, as they represents the basis of high-tech solutions. The training of the future young researcher includes the use of advanced numerical modelling, artificial intelligence methods, experimental work in the laboratory and 3D printing of metal. The research group is one of the leading research groups in the field of development of technical standards and experimental methods in the analysis of structural systems, which will be a good basis for achieving the set goals. Long-term collaborations with some of the leading European technical universities, such as the University of Pavia, Delft University of Technology, Budapest University of Technology and Economics, University of Stuttgart, the centre for numerical modeling at the University of Hannover and others will give the candidate the opportunity to complete part of the training abroad. The generality of the numerical-experimental methods used as well as the broad knowledge in the research group allow the candidate to choose specific goals and focuses

of research in consultation with the mentor. The mentioned can be the basis for the candidate's future professional or research career. Candidates in the field of engineering or natural sciences are invited.

Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*

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*):

Oskar Sterle, oskar.sterle@fgg.uni-lj.si

3. Raziskovalno področje (*Research field*):

Geodezija / Geodesy

4. Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*:
Vključuje morebitne dodatne pogoje, ki jih mora izpolnjevati kandidat/ka za mladega raziskovalca/ko, ki niso navedeni v razpisu za mlade raziskovalce.

slo:

Mlada raziskovalka (mladi raziskovalec) bo delovala (deloval) na Katedri za matematično in fizikalno geodezijo ter navigacijo Oddelka za Geodezijo UL FGG, znanstveno usposabljanje pa bo izvedeno v okviru raziskovalnega programa Dinamična Zemlja (P1-0419), ki ga sestavljajo raziskovalci Geološkega zavoda Slovenije in en raziskovalec Oddelka za geodezijo UL FGG. Znanstveno področje raziskovalne skupine je usmerjeno v spremljanje, analiziranje in modeliranje dinamičnih procesov Zemlje, od aktivne globalne, regionalne in lokalne tektonike, potresnih mehanizmov, pobočnih masnih premikov in drugih površinskih procesov.

Znanstveno-raziskovalno delo mlade raziskovalke (mladega raziskovalca) bo usmerjeno v poglobljen študij geodetskih metod za potrebe spremljanja deformiranja Zemeljskega površja in analize stanja Zemljine atmosfere. Za kakovostno določitev in opredelitev dinamičnih procesov Zemlje je potrebno kakovostno določanje položajev karakterističnih točk in njihovih sprememb skozi čas. Obravnava položaja mora biti opredeljena znotraj modernega časovno odvisnega referenčnega sistema, ki temelji na tehnikah satelitske geodezije in daljinskega zaznavanja. Kandidatka (kandidat) bo znanje pridobila (pridobil) v okviru doktorskega študija, pri sodelovanju v aplikativnih in znanstvenih projektih, sodelovanja v multidisciplinarni skupini raziskovalcev Oddelka za geodezijo in Geološkega zavoda Slovenije in pri vključevanju v mednarodno okolje znanstvenih raziskav.

Iščemo kandidatko ali kandidata, ki jo/ga zanima poglobljen študij geodetskih metod določanja položaja geodetskih točk in njihovih sprememb skozi čas, za spremljanje in modeliranje dinamičnih procesov Zemlje. Prednost bodo imeli kandidati z izobrazbo na področju geodezije. Zaželeno je znanje programiranja za reševanje matematičnih in fizikalnih problemov, kot sta to Matlab in Python. Zahtevano je aktivno znanje angleškega jezika. Pričakuje se odgovornost in samoiniciativnost, predvsem pa odprtost za delo v skupini.

eng:

The Young Researcher will work at the Chair of Mathematical and Physical Geodesy and Navigation, Department of Geodetic Engineering UL FGG, however the scientific training will be carried out within the framework of the research programme Dynamic Earth (P1-0419), a programme that consists of researchers

from Geological Survey of Slovenia and one researcher from Department of Geodesy UL FGG. Scientific field of the research group focuses on monitoring, analysing and modelling of the Earth's dynamic processes; i.e. active global, regional and local tectonics, earthquake mechanisms, slope mass movements and other surface processes.

The scientific work of the young researcher will be focused towards an in-depth study of geodetic methods for monitoring the deformation of the Earth's surface and analysis of the Earth's atmosphere. To determine and define dynamic processes of the Earth with high quality, one must determine the positions of characteristic points and their changes in time. Positions of points must be determined within a modern time-dependent reference systems that are based on satellite geodesy and remote sensing. The candidate will acquire necessary background knowledge through doctoral studies, participation in applied and scientific projects, and participation in a multidisciplinary group of researchers of the Department of Geodesy and the Geological Survey of Slovenia, with an integration into the international environment of scientific research.

We are looking for a candidate who is interested in an in-depth study of geodetic methods for determining the position of geodetic points and their changes over time, for monitoring and modelling the Earth's dynamic processes. Preference will be given to candidates with a degree in geodesy. Programming skills, in particular Matlab and Python, for solving mathematical and physical problems are desirable. Advanced level of spoken and written English is required. The applicant should be responsible, show initiative, and be open to working in a dynamic team.

Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*

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*):

Mojca Šraj, mojca.sraj@fgg.uni-lj.si

3. Raziskovalno področje (*Research field*):

2.20 Vodarstvo (Hydrology)

4. Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*:
Vključuje morebitne dodatne pogoje, ki jih mora izpolnjevati kandidat/ka za mladega raziskovalca/ko, ki niso navedeni v razpisu za mlade raziskovalce.

slo: Mladi raziskovalec/mlada raziskovalka (v nadaljevanju MR) bo delal na raziskovalnem področju v okviru uveljavljenega raziskovalnega programa P2-0180 Vodarstvo in geotehnika: orodja in metode za analize in simulacije procesov ter razvoj tehnologij. Program pokriva inženirske (tehniške) in naravoslovne vsebine, povezane z vodo in vodarstvom. V okviru dela na doktorski disertaciji in podiplomskega študija bo MR sodeloval pri mednarodnih in domačih raziskovalnih projektih in strokovnih nalogah Katedre za splošno hidrotehniko UL FGG in pri aktivnostih Unesco katedre za zmanjševanje tveganj ob vodnih ujmah UL (www.unesco-floods.eu). *Doktorska disertacija bo v dogovoru z MR usmerjena v raziskovanje hidroloških procesov v naravnem okolju in na reševanje inženirskih problemov s širšega področja hidrologije in skladno s predznanji in željami kandidata. MR bo izvajal lastne meritve različnih meteoroloških in hidroloških spremenljivk ter se tako seznanil z različnimi hidrološkimi procesi in mersko opremo na že vzpostavljeni in dobro opremljeni eksperimentalni raziskovalni ploskvi (porečju), kar omogoča takojšen začetek raziskovalnega dela in kvalitetne raziskave na mednarodnem nivoju (tudi v sklopu obstoječih mednarodnih raziskovalnih projektov Katedre za splošno hidrotehniko). Z lastnimi meritvami bo kandidat ugotavljal povezave in zakonitosti med posameznimi merjenimi spremenljivkami, kar mu bo omogočilo boljše razumevanje hidroloških procesov in njihovih vplivnih dejavnikov ter s tem kvalitetnejšo izdelavo hidroloških, vodno-bilančnih ali različnih statističnih modelov. Tema doktorske naloge bo predvidoma usmerjena v področje prestrezanja padavin in s tem povezanimi procesi, kot so npr. evapotranspiracija, odtok, erozija.* *Od kandidata se pričakuje magistrska izobrazba s področja inženirskih znanosti (npr. vodarstvo, (okoljsko) gradbeništvo, gozdarstvo, inženirska geologija) ali naravoslovja (npr. uporabna fizika). Predviden je vpis na podiplomski študijski program Grajeno okolje ali Varstvo okolja. Prednost pri izbiri bodo imeli kandidati s poglobljenim znanjem s širšega področja hidrologije in željo po izvajanju eksperimentalnega dela (terensko delo na obstoječi eksperimentalni ploskvi/porečju) ter razvoju naprednih modelov in statističnih analiz merjenih hidroloških in meteoroloških spremenljivk. Prednost bodo imeli tudi kandidati s predznanjem programskega jezika R (ali podobnih jezikov). MR mora biti samoiniciativen in imeti sposobnost za samostojno raziskovalno delo. Nujno je dobro pisno in bralno znanje angleškega jezika in zanimanje za raziskovalno delo. MR bo deloval pod mentorstvom izkušenih raziskovalcev in hkrati v sodelovanju z drugimi mladimi raziskovalnimi sodelavci v spodbudnem raziskovalnem okolju.*

eng: The Young Researcher (hereafter MR) will work in a research area within the established research programme P2-0180 Water Science and Technology, and Geotechnical Engineering: Tools and Methods for Process Analyses and Simulations, and Development of Technologies. The programme covers engineering (technical) and natural science topics related to water and water management. In the framework of PhD thesis and postgraduate studies, MR will actively participate in international and national research and professional projects of the Chair of Hydrology and Hydraulic Engineering at the Faculty of Civil and Geodetic Engineering, University of Ljubljana, and in the activities of the UNESCO Chair on Water-related Disaster Risk Reduction, University of Ljubljana (www.unesco-floods.eu). *The PhD thesis will be focused on the study of hydrological processes in the natural environment and on the solution of engineering problems in the broader field of hydrology, in agreement with the MR, and according to the candidate's background and preferences. The MR will carry out his/her own measurements of various meteorological and hydrological variables and thus become familiar with various hydrological processes and measurement equipment on an already established and well-equipped experimental research plot (catchment), which allows an immediate start of research work and high quality research at international level (also in the framework of existing international research projects of the Chair of Hydrology and Hydraulic Engineering). The candidate will use his/her own measurements to establish relationships and connections between individual*

measured variables, which will enable him/her to better understand hydrological processes and their influencing factors, and thus to produce hydrological, water balance or various statistical models of higher quality. The topic of the PhD thesis is expected to focus on rainfall interception and related processes, e.g. evapotranspiration, runoff, erosion.

The candidate is expected to have a Master's degree in an engineering science (e.g. water engineering, civil (environmental) engineering, forestry, engineering geology) or a natural science (e.g. applied physics). Enrolment in the 3rd cycle study programmes Built Environment or Environmental Protection is foreseen. Preference will be given to candidates with an in-depth knowledge in the wider field of hydrology and a desire to carry out experimental work (field work on an existing experimental plot/catchment) and to develop advanced models and statistical analyses of measured hydrological and meteorological variables. Preference will be given also to candidates with previous experience in the R programming language (or similar languages). The MR must be self-initiative and able to work independently in research. Good writing and reading skills in English and an interest in research are essential. The MR will work under the supervision of experienced researchers while collaborating with other young researchers in a stimulating research environment.

Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*

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*):

Žiga Turk, ziga.turk@fgg.uni-lj.si

3. Raziskovalno področje (*Research field*):

Računalniško integrirana graditev objektov / Gradbena informatika / eGradbeništvo *Computer integrated construction /Construction IT / E-Civil engineering*

4. Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*:
Vključuje morebitne dodatne pogoje, ki jih mora izpolnjevati kandidat/ka za mladega raziskovalca/ko, ki niso navedeni v razpisu za mlade raziskovalce.

slo: Mladi raziskovalec ali raziskovalka (MR) se bo usposabljal z raziskovalnim delom v okviru raziskovalnega programa E-Gradbeništvo ter Katedre za gradbeno informatiko. Vključil se bo v raziskovalno skupino, ki je svetovno priznana in prepoznavna in ki razvija nova znanja na področju informacijskih in komunikacijskih tehnologij v gradbeništvu, informacijskega modeliranja zgradb, numeričnega modeliranja, komunikacijskih in procesnih infrastruktur, vodenja projektov, internetnih tehnologij, umetne inteligence ter na področju prenosa znanja, vse s ciljem prispevati k digitalizaciji gradbeništva. Naloge MR bodo vključevale raziskovanje in razvoj metod za digitalizacijo gradbene industrije, s poudarkom na uporabi tehnologij, kot so BIM (Building Information Modeling), IoT (Internet of Things), gradbeništvo 4.0, umetna inteligenca in strojno učenje. Pričakuje se, da bo MR sodeloval pri razvoju pametnih gradbenih rešitev, ki bodo omogočale bolj učinkovito upravljanje gradbenih projektov, zmanjšanje presenečenj in stroškov ter izboljšanje kakovosti. Mentor in raziskovalna skupina nudita odlično opremo in delovne pogoje za študij, raziskovanje, mednarodne izmenjave in povezovanje z inženirsko prakso v Sloveniji in po svetu ter odskočno desko za nadaljevanje kariere bodisi na strokovnem ali znanstvenem področju. Pričakovani profil MR je magistrska strokovna izobrazba na področju gradbeništva, arhitekture, drugih inženirskih znanosti ali naravoslovja. Od kandidata/-ke se pričakuje motiviranost, prizadevnost, ustvarjalnost, samoiniciativnost, odprtost za delo v skupini, navdušenje nad informacijsko-komunikacijskimi tehnologijami ter aktivno znanje angleškega jezika.

Obvezna rezultata MR sta opravljen doktorat znanosti in objava enega ali več z njim povezanih člankov v znanstveni reviji ter objave na strokovnih in znanstvenih kongresih doma in po svetu.

eng:
The young researcher (MR) will be trained through research work within the E-Civil engineering research program and the Chair of Construction IT.

The MR will join a world-renowned research group that develops new knowledge in the fields of ICT in construction, building information modelling, numerical modelling, communication and process infrastructures, project management, internet technologies, artificial intelligence and knowledge transfer, all with the aim of contributing to the digitization of construction.

The MR tasks will include research and development of methods for digitizing the construction industry, with a focus on the use of technologies such as BIM (Building Information Modelling), IoT (Internet of Things), Construction 4.0, Artificial Intelligence and Machine Learning. MR is expected to contribute to the development of smart construction solutions that will enable more efficient management of construction projects, reduce surprises and costs, and improve quality.

The mentor and research team offer excellent facilities and working conditions for study, research, international exchanges and networking with engineering practice in Slovenia and worldwide, as well as a springboard to pursue a career in either a professional or scientific field.

The expected profile of an MR is a Master's degree in civil engineering, architecture, other engineering sciences or natural sciences.

The candidate is expected to be well motivated, hard-working, creative, self-initiative, open to teamwork, enthusiastic about information and communication technologies and have an active knowledge of English language.

The mandatory outcomes of the MR are the completion of a PhD and the publication of one or more related papers in a scientific journal, as well as publications in professional and scientific congresses at home and abroad.