

Kratek opis usposabljanja mladega raziskovalca (*Short description of the Young Researcher's training*)

1. Raziskovalna organizacija (*Research organisation*):

Univerza v Ljubljani, Fakulteta za Elektrotehniko
(University of Ljubljana, Faculty of Electrical Engineering)

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

prof. dr. Tomaž Vrtovec; tomaz.vrtovec@fe.uni-lj.si
(Prof. Tomaž Vrtovec, Ph.D.; tomaz.vrtovec@fe.uni-lj.si)

3. Šifra in naziv raziskovalnega področja (*Research field*):

2.06.07 Biomedicinska tehnika
(2.06.07 Biomedical technics)

4. Kratek opis usposabljanja mladega raziskovalca (*Short description of the Young Researcher's training*):

Navedite tudi morebitne druge zahteve, vezane na usposabljanje mladega raziskovalca (npr. znanje tujih jezikov, izkušnje z laboratorijskim delom, potrebne licence za usposabljanje...).

Mladi raziskovalec se bo znotraj širšega področja biomedicinske tehnike usposabljal na področju obdelave in analize medicinskih slik. Načrtoval, razvijal in vrednotil bo nove postopke za samodejno razgradnjo, poravnavo in kvantitativno analizo slik, pridobljenih z rentgensko slikovno tehniko, s slikovno tehniko računalniške tomografije (CT) in/ali s slikovno tehniko magnetne resonance (MR). Tako razvite kot obstoječe postopke bo uporabil na različnih zbirkah medicinskih slik ter vrednotil rezultate z vidika računalniško podprte klinične diagnostike in načrtovanja kirurških posegov.

Za usposabljanje je zahtevano znanje angleškega jezika (z vidika pisanja znanstvenih člankov in prispevkov za mednarodne konference ter obiskovanja kongresov v tujini), programiranje v izbranem računalniškem okolju (npr. Python, C++, Matlab) ter poznavanje osnov nastanka, obdelave in analize medicinskih slik z vidika matematike, fizike in biomedicinske tehnike.

Within the general field of biomedical engineering, the Young Researcher's training will be performed in the field of medical image processing and analysis. The Young Researcher will design, develop and evaluate new techniques for automated segmentation, registration and quantitative analysis of images, acquired with the radiographic (X-ray), computed tomography (CT) and/or magnetic resonance (MR) imaging technique. The developed as well as existing techniques will be applied to various medical image databases for the purpose of evaluating the results from the perspective of computer-assisted clinical diagnosis and surgery planning.

The training requires knowledge in English language (from the perspective of writing scientific articles and contributions to international conferences, as well as attending congresses abroad), programming in a selected computer environment (e.g. Python, C++, Matlab), and understanding the basics of medical image formation, processing and analysis from the perspective of mathematics, physics and biomedical engineering.