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

1. Raziskovalna organizacija (*Research organisation)*:

Univerza v Ljubljani, Fakulteta za elektrotehniko

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

Igor Škrjanc, igor.skrjanc@fe.uni-lj.si

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

2.06 Sistemi in kibernetika, 2.06.01 Tehnologija vodenja sistemov

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…).

slo:

Prediktivno načrtovanje vzdrževanja

Za zagotavljanje nemotene proizvodnje, pa tudi delovanja sistemov na splošno, je potrebno sisteme redno vzdrževati. Običajno je vzdrževanje planirano v naprej in temelji na obratovalnih urah določenega sistema, saj za večino sistemov ne obstajajo sistemi, ki bi merili oziroma ocenjevali dejansko obrabljenost posameznih delov. Zaradi tega so deli na strojih pogostokrat zamenjani preventivno in hkrati prehitro, kar vodi do nepotrebnih stroškov ter nepotrebnih zaustavitev sistemov oziroma proizvodnje.

S pomočjo zbiranja ključnih informacij o delovanju sistemov lahko z uporabo metod prediktivnega vzdrževanja sistemov optimiramo zamenjavo posameznih delov glede na njihovo dejansko iztrošenost. Vsak del sistema ima običajno od proizvajalca specificirano življenjsko dobo, vendar pa se v realnosti lahko zgodi, da posamezen del sistema odpove že pred potekom življenjske dobe ali pa deluje še mesece ali celo leta po poteku življenjske dobe. Z uporabo obratovalnih meritev in ustreznih metod lahko napovemo kolikšna je verjetnost, da posamezen del sistema odpove ter s tem ustrezno planiramo njegovo zamenjavo.

Cilj mladega raziskovalca bo razvoj predikcijskih metod in modelov, ki z uporabo meritev delovanja sistemov ter ustreznih statističnih metod napovedujejo odpoved posameznega dela sistema.

eng:

Predictive maintenance planning

In order to ensure smooth production, as well as the operation of systems in general, systems need to be regularly maintained. Usually maintenance is planned in advance and is based on the operating hours of a particular system, since for most systems there are no systems that measure or evaluate the actual wear and tear of individual parts. Because of this, parts on machines are

often replaced preventively and at the same time too quickly, which leads to unnecessary costs and unnecessary shutdowns of systems or production.

By collecting key information about the operation of systems, we can optimize the replacement of individual parts according to their actual wear, by using predictive system maintenance methods. Each part of the system usually has a specified service life from the manufacturer, but in reality, it may happen that an individual part of the system fails before the end of its service life, or may continue to operate for months or even years after the end of the service life. Using operational measurements and appropriate methods, we can predict the likelihood that an individual part of the system will fail and thus plan its replacement accordingly.

The aim of the young researcher will be to develop prediction methods and models that predict the failure of an individual part of the system, using measurements of systems performance and appropriate statistical methods.