



Supervisor assessment of the PhD candidate Aliaksandr Pautsina

Aliaksandr Pautsina started his PhD studies in March 2010. His primary object of studies was analysis of signals of LC-MS measurement. When the CENAKVA project was funded, Aliaksandr changed his subject to assessment of physiological and behavioural parameters using optical devices and cameras.


Aliaksandr proved his competence both in electrical devices constructions, in hardware programming and in programming of software for data analysis.

The instrument for crayfish heartbeat monitoring, which is the main subject of the thesis, he constructed himself. In comparison to any existent systems it has unique quality in its lightness which is not obstructing the behaviour of the experimental organism. Further Aliaksandr proposed way of analysis of the signal, the quantification of peaks and signals and programmed the software for automated analysis of these parameters. He also quantified biological diversity between the organisms in the cardiac activity parameters which showed that for any practical use any simple combination of parameters is insufficient.

A major contribution of Aliaksandr is his contribution to digital camera based assessment of aquatic organisms. He was involved in the exploration of the fish shoal behaviour in 3D using various types of digital camera. The first prototype of the 3D imaging instrument was based on a simple Microsoft Kinect game interface installed both in Nové Hradky, in Vodňany and finally also in the research site of the Norwegian research institute Nofima in Sundalsøra. Since that he developed several other instruments based on similar principle of assessment of fish reflectivity. He also significantly contributed to the 5iD viewer instrument where the 3D position is determined by analysis of the front image and images from four mirrors. This instrument allows assessment of behaviour in complicated labyrinths.

In summary, Aliaksandr Pautsina proved to be a complex researcher who is able to develop independent research from the level of analysis of the research object, through instrument construction, instrument control software up to the very advanced data analysis. The volume of research which he summarised in years 2010 – 2015 is sufficient for two PhD theses. Perhaps better than any of my previous students I can recommend Aliaksandr Pautsina to start immediately an independent researcher position at any institution worldwide.

Nové Hradky, November 3rd, 2015



Dalibor Štys