CV

Tomáš Kulhánek, Ph.D.

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family status: married, 2 children

Education

Charles University in Prague, Faculty of Mathematics and Physics
1996 – 2002, MSc. in computer science. Master thesis on the theme Open Enterprise Application for Labour Office designed and implemented in J2EE and XML based technologies.

Research assistant, Ph.D. student at 1st Faculty of Medicine, Charles University in Prague
2007 – 2015, Ph.D. in biomedical informatics, defended in June 2015. Interdisciplinary research of utilization of grid-computing, cloud-computing and application in medical physiology (systems biology approach) and voice science (voice signal analysis). Integrating C# .NET backend with HTML and Javascript frontend. Cooperative research with association CESNET, Charles University in Prague and Music and Dance Faculty of the Academy of Performing Arts in Prague.

Language knowledge:

Czech - native
English – level B2, First Certificate in English in 2008
Spanish - level A2
German – level A2-B1

Work experiences:

QA Engineer, Software Engineer, Technical Solution Consultant at Hewlett-Packard
2002 – finished in 2011 (9 years) . Testing and development of technologies related to service oriented architecture standards and implementation (Systinet Registry, OASIS UDDI standard in J2EE). Later software support of the products related to SOA including Systinet Registry in Java and C++. Systinet corp. acquired by Mercury Interactive and later by Hewlett-Packard in 2006. Solving technical issues with customers from Europe, Americas and Asia Pacific region.

Research Assistant, Institute of Pathological Physiology, First Faculty of Medicine, Charles University in Prague
2011 – till present (3 years), interdisciplinary research of modeling and simulation of human physiology using high performance computing resources, customization and development numerical methods in MATLAB, C#, Modelica, participation on EGI.eu project, EGI Champion role in 2013, contribution to virtual patient simulator application

Hobbies:

Independent traveling, volunteering - local leader of workcamps in Czech Republic and participant of workcamps abroad in the field of culture, society and environment. Music – playing piano, guitar, …

List of publications

Related to distributed grid&cloud computing, results maintaned at www.physiovalues.org:

T. Kulhanek, M. Matejak, J. Silar, and J. Kofranek. Parameter estimation of complex mathematical models of human physiology using remote simulation distributed in scientific cloud. In Biomedical and Health Informatics (BHI), 2014 IEEE EMBS International Conference on, pages 712–715, June 2014. http://dx.doi.org/10.1109/BHI.2014.6864463

Kulhanek T.,Matejak M., Silar J.,Privitzer P., Tribula M., Jezek F., Kofranek J.: RESTful web service to build loosely coupled web based simulation of human physiology: **IEEE EMBC 2013**, Osaka, Japan 3-7 July 2013, published in Transactions of Japanese Society for Medical and Biological Engineering Vol. 51 (2013) No. Supplement p. R-32, ONLINE ISSN: 1881-4379 http://dx.doi.org/10.11239/jsmbe.51.R-32

Related to modeling methodology, results maintained at www.physiolibrary.org:

Kulhánek T, Tribula M, Kofránek J, Mateják M. Simple models of the cardiovascular system for educational and research purposes. MEFANET Journal 2014; 2(2): 56-63. Available at WWW: http://mj.mefanet.cz/mj-04140914.

Marek Mateják, Tomáš Kulhánek, Jan Šilar, Pavol Privitzer, Filip Ježek, Jiří Kofránek: Physiolibrary -Modelica library for Physiology, In Conference Proceeding, 10th International Modelica Conference 2014, March 12, 2014

T. Kulhánek, J. Kofránek, and M. Mateják. Modeling of short-term mechanism of arterial pressure control in the cardiovascular system: Object oriented and acausal approach. Computers in Biology and Medicine, Received 15 May 2014, Accepted 22 August 2014, Available online 1 September 2014. http://dx.doi.org/10.1016/j.compbiomed.2014.08.025, **IF: 1.475**, ISSN: 0010-4825

Related to educational application

F. Jezek, M. Tribula, T. Kulhanek, M. Matejak, P. Privitzer, J. Silar, et al., Surviving sepsis - a 3D integrative educational simulator, in: 2015 37th Annu. Int. Conf. IEEE Eng. Med. Biol. Soc., IEEE, 2015: pp. 3679–3682. doi:10.1109/EMBC.2015.7319191.

Related to formalization of basic science of physiology:

Marek Mateják, Tomáš Kulhánek, Stanislav Matoušek: Adair-based hemoglobin equilibrium with oxygen, carbon dioxide and hydrogen ion activity. Scandinavian Journal of Clinical and Laboratory Investigation, vol. 75, pp. 113-120, 2015/02/17 2015. (DOI:10.3109/00365513.2014.984320)