ROMAN PUTANOWICZ
CV

PERSONAL DETAILS

- Date of birth: 05.06.1972

- Nationality: Polish

- Family: married, two children

CONTACT

- Address: ul Duża Góra 39/34, 30-857 Kraków, Poland

- E-mail: putanowr@gmail.com

PROFESSIONAL BACKGROUND

- 2011–to present – Cracow University of Technology
  assistant professor at Institute for Computational Civil Engineering
  My area of interest include computer methods (Finite Element Method and Isogeometric Analysis), design and implementation of scientific simulation systems, mesh generation, computational geometry and scientific visualisation. I teach numerical methods, programming and computer graphics.

- 1997–2011 – Cracow University of Technology
  teaching/research assistant at Institute for Computational Civil Engineering

- 2009–2014 – Roman Putanowicz CET, my own single-person company providing consulting services in the area of computational engineering.

- 2008 – DataComp Ltd. Cracow
  consultant: I prepared a numerical model for an underground inspection chamber and performed static analysis with ALGOR FEM system.

- 2001 – Saxe-Coburg Publications, Edinburgh, UK
  publishing assistant I designed and implemented a set of LaTeXtools tailored to the publisher needs.

EXPERIENCE AND SKILLS

- *computational engineering:* design and implementation of scientific simulation systems, numerical methods, computer methods (FEM, FDM, BEM), scientific visualisation with VTK and OpenDX,

- *computational geometry:* mesh generation in 2D and 3D, geometric modeling with B-Rep and CSG, curves and surfaces representation with NURBS, libraries: OpenNURBS, CGAL, BrlCAD

- *computer graphics/CAD:* QCad, Blender, HOOPS, GUI programming with QT and GTK+, OpenGL

- *programming:* ANSI C, C++, Python, Fortran, Tcl/Tk, Matlab, AWK, bash

- *software engineering:* project, code, documentation management, multilanguage programming (SWIG, f2py, SIP), DevOps (git, svn, Jenkins)

- *programming languages and compilers:* lexical and syntax analysis, formal grammars (lex and yacc), C API for Python, Tcl/Tk, Ch

- *electronic document processing:* TeX, LaTeX, XML

- *operating systems:* various flavours of UNIX systems, MS Windows.

EDUCATION

- 2007 – Ph.D. at Heriot-Watt University, Edinburgh. My dissertation entitled *"Efficient Integration of Software Components for Scientific Simulations"* presents new methodology and software tools for building scientific simulation systems for computational mechanics.

- 2005 – professional training for university teaching staff, Centre for Education and Psychology, Cracow University of Technology.

- 1999-2002 Ph.D. scholarship at Heriot-Watt University, Edinburgh,

PROJECTS

- 2020–to present – multibody dynamics for traffic accidents for V-Sim simulator developed at Cybid (https://cybid.com.pl/)

- 2014–2020 – Morphbar – a project aimed at building an application to help to generate manufactured solutions for verification of the structural analysis codes,

- 2014–to present – Microgen – 3D Microstructure generator `https://github.com/putanowr/microgen`

- 2010–to present – FEMDK (Finite Element Method Development Kit) – preparing, adapting and connecting software libraries to support building FEM appications, Project at CUT

- 2010–to present – TOCHNOGLIB – refactoring Tochnog application into FEM kernel library

- 2009–2011 – consulting/development projects related to mesh generation and mesh partitioning done by my CET company in cooperation with Applied Mathematics ans System Laboratory, Ecole Centrale Paris

- 2007–2009 – design and implementation (in C) of a computational kernel for designing anchorages in concrete. Project in cooperation with DataComp Ltd. for WkrêtMet company

- 2007–to present – *Special courses in computer methods for engineers.* Lecturer. Project in cooperation with Polish Agency for Enterprise Development

- 2006–2008 *CHASE – Ch Applications for Scientific Environments*, Open Source project for building computational tools using Ch programming language, `http://www.cce.pk.edu.pl/~putanowr/chase/chase_index.html`

- 2005–2008 contributing to GrAL project (Grid Algorithms Library), `http://gral.berlios.de`

LANGUAGES

- English – fluent

- German – basic

SELECTED PUBLICATIONS

- books and book chapters:

    - F. Magoulès and R. Putanowicz. *Mesh Partitioning Techniques and Domain Decomposition Methods*, chapter Visualisation of Graph Partitioning and Distributed Finite Element Data with VTK, Saxe-Coburg Publications, UK, 2007.

    - B.H.V. Topping, J. Muylle, P. Iványi, R. Putanowicz, and B. Cheng. *Finite Element Mesh Generation.* Saxe-Coburg Publications, UK, 2004.

- journal papers:

    - Magoulès, Frédéric, Cheik Ahamed, Abal-Kassim, Putanowicz, Roman, Optimized Schwarz method without overlap for the gravitational potential equation on cluster of graphics processing unit, International Journal of Computer Mathematics, vol. 93, iss 6, pp. 955-980, 2016.

    - R. Putanowicz, Grounds for the selection of software components for building FEM simulation systems for coupled problems, Mechanics and Control, 30(4), 2011.

    - F. Magoules, R. Putanowicz. Visualization of large data sets by mixing Tcl and C++ interfaces to the VTK library. Computers and Structures, 85:536–552, 2007.

    - F. Magoules, R. Putanowicz. Large-scale data visualization using multi-language programming applied to environmental problems. International Journal of Energy, Environment, and Economics,13(1), 2006

    - F. Magoules, R. Putanowicz. Optimal convergence of non-overlapping Schwarz methods for the Helmholtz equation. Journal of Computational Acoustics, 13(3):525–545, 2005.

Roman Putanowicz

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