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Vinzenz Gregor Eck

Date of Birth: 21.09.1987, Munich, Germany

Education

since October 2013 **Phd studies in Biomechanics**,
Norges Teknisk-Naturvitenskapelige Universitet (NTNU), Norway.

September 2013 **Diplom Engineer**,
Technische Universität München (TUM), Germany.

June 2012 **Master of Science in Technology**,
Norges Teknisk-Naturvitenskapelige Universitet (NTNU), Norway, *A-B* (average).

August 2010 – June 2012 **Master Study abroad**,
Norges Teknisk-Naturvitenskapelige Universitet, Norway.
Within the Double Degree Programm T.I.M.E. (Top Industrial Manager for Europe).

October 2007 - September 2013 **Study of Mechanical Engineering**,
Technische Universität München, Germany.

Master/Diploma thesis

Title *Arterial Flow and Pulse Wave Propagation in one dimensional Arterial Networks with Statistically Distributed Model Parameters*

Supervisor Professor Leif Rune Hellevik

Grade *A*

Term papers

Title *On Blood Flow Simulation and Wave Propagation in Circulatory Systems with Lumped Parameter Models*

Supervisor Professor Leif Rune Hellevik

Grade *A*

Title *Development, Implementation and Validation of a Simulation Method for Flexible Machine Parts and Process Goods, based on NVIDIA PhysX Softbody, for the Virtual Commissioning*

Supervisors Professor Dr.-Ing. Gunther Reinhart , Dr. Frederic Lacour

Grade *1.3*

Experience

Since April 2013	**Research Assistant**, *Department of Structural Engineering, Field Biomechanics, NTNU*, Trondheim. Development of a hemodynamic-simulation tool for one dimensional arterial networks.
November 2012 – March 2013	**Department Engineer**, *Department of Circulation and Medical Imaging, Faculty of medicine, NTNU*, Trondheim. Development of a hemodynamic-simulation tool for one dimensional arterial networks.
September 2012 – October 2012	**Internship**, *Sona BLW - Precision Forge*, Munich. Working through all departments of the fabrication process; from design and construction to manufacturing of forged components for the automotive production.
August 2012 – September 2012	**Teaching Assistant**, *Department of Energy and Process Engineering, NTNU*, Trondheim. Elaboration of numeric Matlab exercises for the fluid mechanics course for master studies in engineering at NTNU.
April 2011 – August 2012	**Student Research Assistant**, *Department for Petroleum Engineering and Applied Geophysics, NTNU*, Trondheim. Set up and conduction of core-flooding experiments under high pressure, to determine the distribution of Oil, Water and CO_2 on a micro scale within a stone sample.
May 2007 – August 2010	**Student Research Assistant**, *iwb – Institute for Machine Tools and Industrial Management, TUM*, Munich. Programming a simulation software for material flow based on physical laws for the virtual commissioning of production systems.

Languages

German	Mother tongue
English	Fluent in spoken and written
Norwegian	Fluent skills in spoken and written
French	Basic skills in spoken and written

Computer skills

Programming languages	Python, C, C++, Matlab, Bash
3D/CAD programs	SolidWorks, Catia, 3dsMax
Other Applications	Office, LaTeX, Image Manipulation Tools (Photoshop, Gimp, InkScape), Ardour - digital audio workstation, git

Publications

Journal Articles

V. G. Eck, W. P. Donders, J. Sturdy, J. Feinberg, T. Delhaas, L. T. Hellevik, and W. Huberts. A guide to uncertainty quantification and sensitivity analysis for cardiovascular applications. *International Journal for Numerical Methods in Biomedical Engineering*, 2015.

V. G. Eck, J. Feinberg, H. P. Langtangen, and L. R. Hellevik. Stochastic sensitivity analysis for timing and amplitude of pressure waves in the arterial system. *International Journal for Numerical Methods in Biomedical Engineering*, 2015.

Conference Articles

V. Eck, Jonathan Feinberg, J. Sturdy, Hans Petter Langtangen, and Leif Rune Hellevik. Sensitivity analysis and uncertainty quantification in a wave propagation model: A study of uncertain arterial stiffness. In P. Nithiarasu and E. Budyn, editors, *Proceedings of the 4rd International Conference on Computational & Mathematical Biomedical Engineering*, 2015.

V. G. Eck, J. Feinberg, H. P. Langtangen, and L. R. Hellevik. Assessment of statistical variability in material parameters for 1d wave propagation in arterial networks. In *3rd International Conference on Computational and Mathematical Biomedical Engineering - CMBE2013*, 2013.

V. G. Eck, J. Feinberg, H. P. Langtangen, and L. R. Hellevik. Effects of parametric uncertainty in blood flow simulations. In *Proceedings - Virtual Physiological Human Conference 2014*, 2014.

V. G. Eck, J. Feinberg, H. P. Langtangen, and L. R. Hellevik. Stochastic arterial flow simulations. In *Proceedings of the 27th Nordic Seminar on Computational Mechanics*, pages 74–76, 2014.

V. G. Eck, J. Feinberg, J. Sturdy, H. P. Langtangen, and L. R. Hellevik. Uncertainty quantification and sensitivity analysis for wave propagation models of the arterial systemic circulation. In *Proceedings of ICCB 2015*, 2015.

V. G. Eck, P. R. Leinan, and L. R. Hellevik. One dimensional network models for cardiovascular applications. In *Proceedings of the 25th Nordic Seminar on Computational Mechanics*, 2012.

J Sturdy, V.G. Eck, and L. R. Hellevik. A Validation of Coupling Carotid and Aortic Baroreflex Models to a 1d Blood Flow Model of the Systemic Arterial Tree. In *ICCB 2015, VI International Conference on Computational Bioengineering*, Barcelona, sep 2015.

Jacob Sturdy, V.G. Eck, and L.R. Hellevik. Uncertainty quantification of short term baroreflex regulation of blood pressure. In *CMBE15 4th International Conference on Computational & Mathematical Biomedical Engineering*, Ecolé Normale Supéieure de Cachan, jun 2015. CMBE.