Dr. Benedikt Zönnchen

Curriculum vitae

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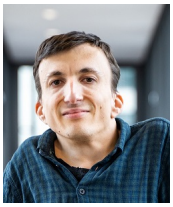
Academic education



03/2016 - 07/2020	*Technical University of Munich (TUM)*, Prof. Hans-Joachim Bungartz *Munich University of Applied Sciences (MUAS)*, Prof. Gerta Köster **Computer Science (Dr. rer. nat.)**, summa cum laude
PhD thesis	Efficient parallel algorithms for large-scale pedestrian simulation
10/2013 - 02/2016	*Technical University of Munich (TUM)*, **Computer Science (M. Sc.)**, Grade: 1.5
Master thesis	Implementation of an efficient equivalence test for sequential & linear tree-to-word transducers
10/2010 - 09/2013	*Munich University of Applied Sciences (MUAS)*, **Computer Science (B. Sc.)**, Grade: 1.17
Bachelor thesis	Navigation around pedestrian groups and queueing using a dynamic adaption of travelling times in the fast marching algorithm

Job history (non-academic)

08/2020 - today	**Senior advisor for education in computer science**, *Munich University of Applied Sciences*
03/2011 - 10/2011	**Software developer (working student)**, *Prevero AG*
09/2008 - 07/2009	**Web developer**, *Nokia Siemens Networks GmbH & Co. KG*
09/2005 - 07/2008	**Software developer (education)**, *Siemens AG*

Practical experience

Software development

Java	**Excellent knowledge**, Java developer since 2006, main contributor to the open-source simulation framework Vadere, language of my education at Siemens and the Bachelor program
Python	**Excellent knowledge**, Python developer since the start of my dissertation (2016), scripting, trainer for Python, author of a free Python textbook
JS, HTML, CSS	**Very good knowledge**, contributor to a social media platform (1 year), P5JS visualizations
OpenCL	**Very good knowledge**, GPU programming during my PhD project
C/C++	**Good knowledge**, high performance computing during my PhD project
Database, SQL	**Good knowledge**, constant use during my work as software developer
PHP	**Basic knowledge**, contributor to a social media platform (1 year)
Scala, Haskell	**Basic knowledge**, personal interest in functional programming

Other technologies

Git	**Excellent knowledge**, Git user since 2011
LaTeX	**Excellent knowledge**, LaTeX advocate since 2011
Docker, Kubernetes	**Basic knowledge**, installation of my own Kubernetes cluster for educational purposes
Jupyter ecosystem	**Very good knowledge**, installation a JupyterHub for a lecture, Development of Jupyter notebooks for my students, author of an interactive Jupyter book

Teaching

Winter 2021/22 **Computational Thinking**, lecture (bachelor), *trainer*, MUAS
Winter 2021/22 **Preparation for Computer Science**, 5-day course (bachelor), *trainer and coordinator*, MUAS
Winter 2020/21 **Preparation for Computer Science**, 5-day course (bachelor), *trainer and coordinator*, MUAS
Winter 2019/20 **Machine Learning in Crowd Modeling and Simulation**, *guest lecture*, TUM
Winter 2016/17 **Linear Algebra**, lecture (bachelor), *lecturer*, MUAS
Summer 2016 **Scientific Computing**, Seminar (bachelor), *Lecturer*, MUAS
Summer 2016 **Theoretical Computer Science**, lecture (bachelor), *trainer*, MUAS

Field of interests

- Free and open education, schooling and education in the digital era
- Modelling and simulation, mesh generation and its application, design of efficient and parallel algorithms
- Theoretical computer science, automata theory, constructivist mathematics, music theory
- Algorithmic art (Processing, P5js, SuperCollider), algorithm visualization, sonification
- Film critique and analysis, philosophy, chess, history of mathematics and computer science

Publications

2020 **Benedikt Zönnchen**, and Gerta Köster, GPGPU computing for microscopic pedestrian simulation, In *Parallel Computing: Technology Trends*, 10.3233/APC200029

2020 **Benedikt Zönnchen**, Benedikt Kleinmeier and Gerta Köster, Vadere – a simulation framework to compare locomotion models, In *Traffic and Granular Flow 2019*, 10.1007/978-3-030-55973-1_41

2019 **Benedikt Zönnchen**, Benedikt Kleinmeier, Marion Gödel and Gerta Köster, Vadere: an open-source simulation framework to promote interdisciplinary understanding, In *Collective Dynamics*, 4, 10.17815/CD.2019.21

2019 **Benedikt Zönnchen**, Matthias Laubinger and Gerta Köster, Towards faster navigation algorithms on foor fields, In *Traffic and Granular Flow '17*, 10.1007/978-3-030-11440-4_34

2018 **Benedikt Zönnchen** and Gerta Köster, A parallel generator for sparse unstructured meshes to solve the eikonal equation, In *Journal of Computational Science*, 10.1016/j.jocs.2018.09.009

2015 Gerta Köster and **Benedikt Zönnchen**, A queuing model based on social attitudes, In *Traffic and Granular Flow '15*, 10.1007/978-3-319-33482-0

2016 **Benedikt Zönnchen** and Gerta Köster, Detecting arbitrarily shaped queues using the fast marching method, *8th International Conference on Pedestrian and Evacuation Dynamics*, Hefei, China

2014 Gerta Köster and **Benedikt Zönnchen**, Queuing at bottlenecks using a dynamic floor field for navigation, In *Transportation Research Procedia*, 10.1016/j.trpro.2014.09.029

Scholarships & awards

2021 **Dissertation award** (Bund der Freunde der Technischen Universität München e. V.)
04/2012 – 05/2016 **German Academic Scholarship Foundation** (Studienstiftung des deutschen Volkes)
06/2012 – 05/2016 **Max Weber-Program of the State of Bavaria** (Max Weber-Programm Bayern)
2013 **RiMEA sponsorship award**, **Valedictorian**

München, 27. Oktober 2021