Jan Westerdiep, PhD

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I am a busy bee, a fast learner, and always eager to explore new ideas. I tinker with everything I see and enjoy understanding "how it works". I have a heart for science, work best in a team, and would like to apply and deepen my knowledge in a field that might benefit society.

EXPERIENCE

Apple Munich, DE
Software Engineer @ Hardware Test Engineering team *2022–now*
· High-performance numerical algorithms in C++

Google/Maps London, UK
Software Engineering Intern @ Live Location team *2018*
· 13-week research project on scalable Reinforcement Learning algorithms in Python/TensorFlow

Google/YouTube Mountain View, California, USA
Software Engineering Intern @ Watch Next team *2016*
· 14-week project in high-performance C++ for machine learning (scalable recommender systems)

EDUCATION

University of Amsterdam Amsterdam, NL
PhD in Numerical Mathematics *2017–2021*
· Research at interface of mathematics, computer science, and physics under prof. dr. R. Stevenson
· Co-author of 6 journal papers, 2 conference papers, 3 open-source software libraries in C++ and Python
· Thesis: *Space-time residual minimization for parabolic partial differential equations*

MSc in Mathematics (GPA: 8.8/10; Cum Laude) *2014–2017*
· ASML Technology Scholarship; 29th place at 2015 ICPC North-west European finals
· Thesis: *Two-dimensional hp-adaptive finite elements in theory and practice*, graded 9/10

BSc in Mathematics & BSc in Computer Science (GPA: 8.6/10; Cum Laude & Hon's) *2011–2014*
· Thesis: *An adaptive algorithm for piecewise polynomial approximation*, graded 10/10

Barlaeus Gymnasium Amsterdam, NL
Pre-university education (GPA: 8.5/10; Cum Laude) *2006–2011*

TEACHING EXPERIENCE

2021 Supervising year-3 BSc project *Finite element method for elliptic eigenvalue problems*
2019–'21 Co-creating & co-lecturing BSc course *Training Benelux Algorithm Programming Contest*
2019–'20 Supervising year-2 BSc projects *Multilayer Perceptrons*, *Quasi-Monte Carlo integration*
2018, '20 TA for MSc course *Numerical Algorithms*
2017–'20 TA for BSc courses *Numerical Analysis*, *Numerical Linear Algebra*, *Intro Programming*
2010–'12 Training track & field to pupils age 6–12, focusing on fun and creative trainings

PEER-REVIEWED SCIENTIFIC PUBLICATIONS

2022 *Efficient space-time adaptivity for parabolic evolution equations using wavelets in time and finite elements in space*, with R. van Venetië. In *Numerical Linear Algebra with Applications*. doi:10.1002/nla.2457 and doi:10.5281/zenodo.4700537.

2022 *A wavelet-in-time, finite element-in-space adaptive method for parabolic evolution equations*, with R. Stevenson & R. van Venetië. In *Advances in Computational Mathematics*. doi:10.1007/s10444-022-09930-w.

2021 *Space-time residual minimization for parabolic partial differential equations*, Ph.D. thesis.

2021 *Minimal residual space-time discretizations of parabolic equations: Asymmetric spatial operators*, with R. Stevenson. In *Computers & Mathematics with Applications*. doi:10.1016/j.camwa.2021.09.014.

2021 *Accuracy controlled data assimilation for parabolic problems*, with W. Dahmen & R. Stevenson. In *Mathematics of Computation*. doi:10.1090/mcom/3680.

2020 *A parallel algorithm for solving parabolic evolution equations*, with R. van Venetië. In *Parallel-in-Time Integration Methods*. doi:10.1007/978-3-030-75933-9_2 and doi:10.5281/zenodo.4475959.

2020 *PACE Solver Description: tdULL*, with R. Brokkelkamp, M. de Vries & R. van Venetië. In *Proceedings of IPEC 2020*. doi:10.4230/LIPIcs.IPEC.2020.29 and doi:10.5281/zenodo.3881472.

2019 *Stability of Galerkin discretizations of a mixed space-time variational formulation for parabolic evolution equations*, with R. Stevenson. In *IMA Journal of Numerical Analysis*. doi:10.1093/imanum/drz069.

2018 *On p-Robust Saturation on Quadrangulations*. In *Computational Methods in Applied Mathematics*. doi:10.1515/cmam-2018-0136.

SCIENTIFIC TALKS

2021 *Parallel space-time residual minimization for parabolic evolution equations*, PinT2021.

2021 *A parallel algorithm for solving parabolic evolution equations*, YIC2021.

2020 *Space-time adaptivity for parabolic evolution equations*, PinT2020.

2019 *Stability of Galerkin discretizations of parabolic evolution equations*, AANMPDE12.

2018 *Optimal hp-adaptive finite elements in practice*, poster at WSC2018.

EXTRACURRICULARS

Jellinek Verslavingszorg Amsterdam, NL
Peer Educator @ Unity Amsterdam *2014–2022*

· Volunteer project for and by people in electronic music, providing harm reduction education at events

Phanos Amsterdam Amsterdam, NL
Track & Field athlete *2007–2012*

· Sprint (100m, 200m) and 4×100m relay; in Dutch relay team for 2012 Under-20 World Championships

SKILLS

Computer Languages	C++, C, Python, MATLAB, Mathematica
Computer Tools	vim, git, LaTeX, Photoshop, MacOS, GNU Linux
Natural Languages	Dutch (*mother tongue*), English (*fully fluent*), German (*elementary*)

INTERESTS

Live performances in electronic music genres, cooking, athletics, swimming, cycling, bouldering