Curriculum Vitae
Olaf Schenk

Full Professor, Institute of Computing, Faculty of Informatics, USI, Lugano, Switzerland; Director Panua Technologies Sagl, Lugano, Switzerland; June 2026, SIAM Fellow

Research Interests

My research interests revolve around the central topic of "High Performance Computing for Computational Science and Engineering". In this context one can identify three sub-branches that I am actively working on: (1) performance modeling, simulation, and optimization of **large-scale parallel applications**, (2) **data-integrated simulation science** and, (3) advanced **software for computational science and data analytics applications** on **emerging HPC architectures**. The mission is to foster a synergistic advancement of scientific computing and computational data science through teaching, research and outreach. It will co-evolve multiple computing modes and advance mathematics, algorithms and software to address the challenges presented by scientific and societal problems.

Current Position

2016–present **Full Professor of Computing** **USI**
Research and teaching on computing, data science, and HPC, advising Postdocs, and PhD, MSc, and BSc students in the Advanced Computing Laboratory at the Institute of Computing, Faculty of Informatics, Università della Svizzera italiana (USI), Switzerland. ( )

2022–present **Director** **Panua Technologies Sagl**
Founder & Director (15%) at Panua Technologies Sagl. Panua is a spin-off from the Faculty of Informatics at Università della Svizzera italiana. It creates customized high-end software solutions for large-scale prediction, simulation, optimization, and graph analytics. ( )

Awards and Honors

Fellow / Faculty Awards

2020 **SIAM Fellow** **Philadelphia, USA**
SIAM Fellow (Class of 2020), recognized for advances in the development of robust parallel sparse matrix algorithms and their effective use in large-scale science and engineering applications.

2008 **SIAM SIGEST Honor** **Philadelphia, USA**
"SIGEST highlights a recent paper from one of SIAM's specialized research journals, chosen on the basis of exceptional interest to the entire SIAM community and revised and condensed as needed for greater accessibility." (with M. Bollhöfer, Braunschweig University of Technology, Germany and R. Römer, University of Warwick, United Kingdom).

2007 **IBM Faculty Award** **Yorktown Heights, USA**
"To qualify for this internationally competitive award [...] candidates must have an outstanding reputation for contributions in their field or, in the case of junior faculty, show unusual promise.", Prize: $40,000

Computing Awards

2014 **INCITE Award** **Oak Ridge Leadership Computing Facility, USA**
"[...] for researchers to make transformational advances in science and technology through large allocations of computer time and [...] at the Argonne and Oak Ridge Leadership Computing Facility centers, operated by the US Department of Energy Office of Science.", 100,000,000 CPU h. (with J. Tromp, Princeton, USA.)

2013 **INCITE Award** **Oak Ridge Leadership Computing Facility, USA**
"[...] for researchers to make transformational advances in science and technology through large allocations of computer time and [...] at the Argonne and Oak Ridge Leadership Computing Facility centers, operated by the US Department of Energy Office of Science.", 100,000,000 CPU h. (with J. Tromp, Princeton, USA.)

Paper Awards

2024 **SIAM SIAG/SC Best Paper Award** **Philadelphia, USA**
"SIAM Activity Group on Supercomputing Best Paper Prize" in the field of parallel scientific and engineering computing and published within the four calendar years preceding the award year, associated publication: C. Alappat, G. Hager, O. Schenk, J. Thies, A. Basermann, A. Bishop, H. Fehske, G. Wellein, *A Recursive Algebraic Coloring Technique for Hardware-Efficient Symmetric Sparse Matrix-Vector Multiplication*, ACM Transactions on Parallel Computing, Vol. 7, No. 3, Article 19, June 2020, DOI: 10.1145/3399732.

2024 **IEEE HPEC Best Paper Award** **Boston, USA**
"28th Annual IEEE High Performance Extreme Computing Conference Best Paper Prize", associated publication: M. Lechekhab, D. Pasadakis, O. Schenk, *Multilevel diffusion based spectral graph clustering*, IEEE High Performance Extreme Computing Conference (HPEC), Wakefield, MA, USA, 2024, DOI: 10.1109/HPEC62836.2024.10938528

2023 **IEEE HPEC Best Paper Award** **Boston, USA**
"27th Annual IEEE High Performance Extreme Computing Conference Best Paper Prize", associated publication: D. Pasadakis, O. Schenk, V. Vlacic, A.-J. Yzelman, *Nonlinear spectral clustering with C++ GraphBLAS*, IEEE High Performance Extreme Computing Conference (HPEC), Wakefield, MA, USA, 2023, DOI: 10.48550/arXiv.2605.26975.

Poster Awards

2025 **IEEE Best Poster Award** **Edinburgh, United Kingdom**
IEEE International Conference on Cluster Computing (CLUSTER), 2025, associated publication: X. Niu, G. Meyer, D. Pasadakis, A.-J. Yzelman, O. Schenk, *Incremental sparse tensor format for maximizing efficiency in tensor-vector multiplications*, in IEEE International Conference on Cluster Computing Workshops (CLUSTER Workshops), Edinburgh, United Kingdom, 2025, DOI: 10.1109/CLUSTERWorkshops65972.2025.11164206.

2024 **IEEE SDS Best Poster Award** **Zurich, Switzerland**
IEEE Swiss Data Science Conference 2024, associated publication: J. Schmidt, D. Pasadakis, M. Sathe, O. Schenk, *GAMLNet: a graph based framework for the detection of money laundering*, in 11th IEEE Swiss Conference on Data Science (SDS), Zurich, Switzerland, 2024, DOI:10.1109/SDS60720.2024.00043.

2018 **ACM Platform for Advanced Scientific Computing** **Zurich, Switzerland**
ACM Platform for Advanced Scientific Computing (PASC), Basel, Switzerland, 2018, E. Barnett, S. Rawat, S. Gyanchandani, D. Pasadakis, O. Schenk, *High performance topology optimization.*

2016 **ACM Platform for Advanced Scientific Computing** **Zurich, Switzerland**
ACM Platform for Advanced Scientific Computing (PASC), Lausanne, Switzerland, 2016, D. Pasadakis, D. Kourounis, O. Schenk, *Estimation of drag and lift coefficients for steady state incompressible flow.*

Positions and Experience

Research

2016–present **Full Professor of Computing** **USI**
Research and teaching on computing, data science, and HPC, advising Postdocs, and PhD, MSc, and BSc students in the Advanced Computing Laboratory at the Institute of Computing, Faculty of Informatics, USI, Switzerland.

2022–present **Director** **Panua Technologies Sagl**
Founder & Director (15%) at Panua Technologies Sagl. Panua is a spin-off from the Faculty of Informatics at Università della Svizzera italiana. It creates customized high-end software solutions for large-scale prediction, simulation, optimization, and graph analytics.

2020–2024 **External Lecturer** **ETH Zurich**
Responsible for the course *High Performance Computing Lab* which is offered within the BSc of Computational Science and Engineering (7 ECTS) at ETH Zurich.

2012–2023 **Associate Advisor** **CSCS/ETH Zurich**
Advisor Position (15%) at the Swiss National Supercomputing Centre on scientific computing support and scientific computing engagement. ( )

2012–2016 **Associate Professor of Computational Science** **USI**
Research and teaching on computational science and HPC, advising Postdocs, and PhD, MSc, and BSc students in the Advanced Computing Laboratory at the Institute of Computational Science, Faculty of Informatics, USI, Switzerland.

2005–2011 **Senior Researcher** **University of Basel, Switzerland**
Principle Investigator for several academic and industrial research projects (total financial volume: CHF 3,976,000) on computational science and HPC, advised 3 PhD and 9 MSc students in the Department of Mathematics and Computer Science, and (co)taught 9 courses on the BSc and MSc levels in computer science.

2001–2004 **Postdoctoral Fellow** **University of Basel, Switzerland**
Parallel programming and HPC research. Scientific advisor: Prof. Helmar Burkhart.

2002–2003 **Visiting Researcher** **IBM Thomas J. Watson Research Center, Yorktown, USA**
Research on parallel programming, sparse matrix algorithms, and HPC. Scientific host: Anshul Gupta

1996–2000 **Research Assistant / PhD Student** **ETH Zurich, Switzerland**
Research on semiconductor device simulation, solver, and HPC in the Department of Information Technology and Electrical Engineering, Scientific advisor: Prof. Wolfgang Fichtner

Education

2010 **Habilitation in Applied Informatics and Scientific Computing** **University of Basel**
"Venia Docendi" at Department of Mathematics and Computer Science **Basel, Switzerland**

1996–2000 **PhD in Electrical Engineering and Information Technology (Dr. sc. techn.)** **ETH Zurich**
Committee members: Wolfgang Fichtner, Martin Gutknecht **Zurich, Switzerland**

1990–1995 **Diploma Technomathematik** **KIT Karlsruhe**
Karlsruhe Institute of Technology **Karlsruhe, Germany**

Current Significant Leadership and Service Positions

2025–present **Director** **USI**
Director of the Institute of Computing at USI.

2019–present **Scientific Council** **IT4Innovations**
Member of Scientific Council of IT4Innovations, the Czech National Supercomputing Center, Ostrava, Czech Republic

2018–present **Advisory Board Master Computational Engineering** **University of Erlangen-Nuremberg**
Member of the Advisory Board for the Master Computational Engineering at University of Erlangen-Nuremberg, Germany.

2014–present **Master Program Director** **USI**
Director of the Computational Science Master program.

2014–present **Steering Committee** **ACM PASC**
Steering Committee ACM PASC conference, the ACM PASC Conference series is an international and interdisciplinary platform for the exchange of knowledge in scientific computing and computational science with a strong focus on methods, tools, algorithms, application challenges, and novel techniques and usage of HPC.

CSE Software Impact

Software **PARDISO Sparse Matrix Solver Software**
The fastest multi-threaded sparse direct matrix solver software for arbitrary matrices. The software has been integrated into the Intel Math Kernel Library, installed on almost every supercomputer in the TOP500 list, used by > ten thousand users. One paper cited >2000 since 2005. Available (DOI).

Optimization Algorithm **Parallel Solver and Interior-Point Optimizations**
Proposed algorithms and linear solver reference implementation that are now used in virtually every interior-point implementation, e.g., in IPOPT (Wilkinson Prize for Numerical Software in 2011).

External Funding

Total: raised ≈ **CHF 6'736'792** for USI in funding from government and industry since 2012 (start at USI), Olaf Schenk's portion of the funding in shown in brackets.

2026-2028 **Innosuisse** **USI**
CHF 1'270'202 (USI: CHF 628'514.10) on "Next-Generation Anticipatory Intelligence for Power Markets", PI: O. Schenk (USI), Partner: Flame SA, Lugano. (DOI)

2025 **ARM** **USI**
CHF 15'000 (USI: CHF 15'000), ARM unrestricted gift on "Optimizing small and Irregular-shaped sparse graph computations on ARM Multi-Cores.", PI: O. Schenk (USI), Partner: Arm Ltd, Cambridge UK.

2022-2025 **Swiss National Science Foundation** **USI**
CHF 581'116 (USI: CHF 581'116) on " Numerical Algorithms, Frameworks, and Scalable Technologies for Extreme-Scale Computing", PI: O. Schenk, Co-PI: M. Bollhöfer (TUB). (DOI)

2023-2025 **EuroHPC JU** **USI**
Euro 7'000'000 (USI: Euro 561'812) on "First European Master's degree programme in High Performance Computing " PI: O. Schenk (USI), Partner: eight other European Universties, Lugano. (DOI)

2020-2023 **Innosuisse** **USI**
CHF 1'546'687 (USI: CHF 778'398) on "High Performance Data Analytics Framework for Power Market Simulation" PI: O. Schenk (USI), Partner: DXT Commodities SA, Lugano. (DOI)

2019-2023 **KAUST Competitive Research Grants** **USI**
US$ 1'010'000 (USI: US$ 408'050) on "Preparing for next-generation approximate Bayesian inference using R-INLA", PI: H. Rue (King Abdullah University of Science and Technology), Co-PI: O. Schenk (USI). (DOI)

2019-2023 **Swiss National Science Foundation SINERGIA** **USI**
CHF 1'550'000 (USI: CHF 247'050) on "Can economic policy mitigate climate change?", PI: F. Kuebler (University of Zurich), Co-PI: O. Schenk (USI). (DOI)

2019-2020 **Innosuisse** **USI**
CHF 47,242 (USI: CHF 47,242) on "Big Data driven controls and performance assessment" PI: O. Schenk (USI), Partner: Research Center for Energy Networks, ETH Zurich. (DOI)

2018-2022 **Swiss National Science Foundation** **USI**
CHF 247'050 (USI: CHF 247'050) on "Balanced Graph Partition Refinement using the Graph p-Laplacian", PI: O. Schenk (USI). (DOI)

2017-2020 **Platform for Advanced Scientific Computing (PASC)** **USI**
CHF 461,500 (USI: CHF 150,000) on "Computing Equilibria in Heterogeneous Agent Macro Models on Contemporary HPC platforms", PI: F. Kubler (University of Zurich), Co-PI: O. Schenk (USI), et. al. (DOI)

2017-2020 **Swiss Commission for Technology&Innovation** **USI**
CHF 15,702,516 (USI: CHF 390,080) on "Computational Approaches for the Design and Operation of the Energy Management System in Future Electric Power Systems" PI: O. Schenk (USI), Partner: SwissGrid, Laufenburg. (DOI)

2017-2018 **Swiss Commission for Technology&Innovation** **USI**
CHF 1'145'614 (USI: CHF 242,324) on "Efficient Simulation and Optimization for Reliable Intercoupled Multi-Energy Carrier Systems" PI: G. Hug (ETH Zurich), D. Kourounis (USI), O. Schenk (USI), Partner: NEPLAN, Zurich. (DOI)

2016 **Swiss National Science Foundation** **USI**
CHF 16,000 (USI: CHF 0,000) on 3rd Platform for Advanced Scientific Computing Conference, PI: J. Hesthaven (EPFL), Co-PI: O. Schenk (USI), et. al. (DOI)

2016-2018 **Swiss National Science Foundation** **USI**
€660,574 (USI: CHF 178,000) on Dual-Phase Steels – From Micro to Macro Properties (EXASTEEL-2), - **German Priority Programme 1648 Software for Exascale Computing**, PI: A. Klawonn (Coordinator, Cologne, Germany), Co-PI: O. Rheinbach (Freiberg, Germany), D. Balzani (Dresden, Germany), J. Schröder (Essen, Germany), O. Schenk (USI), G. Wellein (Erlangen, Germany) (DOI)

2015-2017 **Platform for Advanced Scientific Computing (PASC)** **USI**
CHF 250,000 (USI: CHF 18,000) on Tackling Large Dynamic Stochastic Equilibrium Models with Occasionally Binding Constraints, PI: F. Kubler (University of Zurich), Co-PI: O. Schenk (USI), et. al. (DOI)

2014-2017 **Platform for Advanced Scientific Computing (PASC)** **USI**
CHF 80,000 (USI: CHF 80,000) on PASC Conference Series 2014-2017, PI: O. Schenk (USI), Co-PI: 8 additional computational science Swiss faculty members from other Swiss universities. (DOI)

2013-2016 **Platform for Advanced Scientific Computing (PASC)** **USI**
CHF 320,000 (USI: CHF 320,000) on HPC Application Support for the PASC Solid Earth Dynamics Community, PI: A. Fichtner (ETHZ), Co-PI: O. Schenk (USI), et. al. (DOI)

2015-2016 **Platform for Advanced Scientific Computing (PASC)** **USI**
CHF 655,000 (USI: CHF 200,400) on ANSWERS: Accelerating Nano-Device Simulations with Extreme-Scale Algorithms and Software Co-Integration, PI: M. Luisier (ETHZ), Co-PI: O. Schenk (USI), et. al.

2014-2016 **Platform for Advanced Scientific Computing (PASC)** **USI**
CHF 759,000 (USI: CHF 282,492) on GeoPC: Infrastructure Development for Hybrid Parallel Smoothers for Multigrid Preconditioners, PI: Tackley (ETHZ), Co-PI: O. Schenk (USI), et. al.

2014-2016 **Swiss Commission for Technology and Innovation** **USI**
CHF 10,000,000 (USI: CHF 184,000) on Future Swiss Electrical Infrastructure (SCCER-FURIES), PI: M. Paolone (EPFL), Co-PI: O. Schenk (USI) et. al. (32 additional Swiss research partners).

2013-2016 **EU-FP7-Information and Communication Technologies** **USI**
€3,385,000 (USI: €299,000) for the EXA2CT European Project EXascale Algorithms and Advanced Computational Techniques, PI: Verachtert (Imec), Co-PI: O. Schenk (USI) et.al.

2015 **Schloss Dagstuhl - Leibniz-Zentrum für Informatik** **USI**
Grant: one week at the Dagstuhl center on Advanced Stencil-Code Engineering, PI: C. Lengauer (Univ. of Passau), Co-PI: O. Schenk (USI), et. al.

2014-2017 **Swiss National Science Foundation** **USI**
CHF 328,000 (USI: CHF 164,000) on Towards Extreme-Scale Coupled Electrothermal Simulations of Realistic Nano-Devices, PI: O. Schenk (USI), Co-PI: A. Schenk (ETHZ).

2013-2016 **Platform for Advanced Scientific Computing (PASC)** **USI**
CHF 699,000 (USI: CHF 252,656) on GeoScale: A Framework for Multi-Scale Seismic Modelling and Inversion, PI: A. Fichtner (ETHZ), Co-PI: O. Schenk (USI), et. al.

2013 **Swiss National Science Foundation** **USI**
CHF 8,000 (USI: CHF 8,000) on 22nd International Conference on Domain Decomposition Methods, PI: R. Krause (USI), Co-PI: O. Schenk (USI), et. al.

2012-2013 **HP2C** **USI**
CHF 100,000 (USI: CHF 40,000) on PASC Geophysics Community Network, PI: T. Nissen-Meyer (ETHZ), Co-PI: O. Schenk (USI), et. al.

2013-2014 **Swiss National Science Foundation** **USI**
CHF 339,000 (USI: CHF 200,000) on Seismic Inversion for Waves in Strongly Heterogeneous Media, PI: M. Grote (University of Basel), Co-PI: O. Schenk (USI).

2010-2013 **HP2C** **University of Basel**
CHF 1,105,000 (Univ. of Basel: CHF 785,000) on Large-Scale Nonlinear Optimization for High Resolution 3D-Seismic Imaging, PI: O. Schenk (USI), Co-PI: Burkhart (Univ. of Basel), Grote (Univ. of Basel), Giardini (ETHZ)

2010-2012 **Swiss Commission for Technology and Innovation** **University of Basel**
CHF 550,000 on Automobile Simulation and Visualization on Manycores, PI: H. Burkhart (Univ. of Basel), Co-PI: O. Schenk (Univ. of Basel)

2010 **Schloss Dagstuhl - Leibniz-Zentrum für Informatik** **University of Basel**
Grant: one week at the Dagstuhl center on Combinatorial Scientific Computing, PI: Naumann (RWTH Aachen) , Co-PI: O. Schenk (Univ. of Basel), et. al.

2010 **Industry – IBM** **University of Basel**
$ 7,000 on IBM Academic Visiting Fellowship, Yorktown Heights, NY, USA, PI: O. Schenk (Univ. of Basel)

2010-2012 **Swiss National Science Foundation** **University of Basel**
CHF 160,000 on Multiscale Analysis and Inversion for Waves in Strongly Heterogeneous Media, PI: M. Grote (Univ. of Basel), Co-PI: O. Schenk (Univ. of Basel)

2009 **Industry – IBM** **University of Basel**
$ 7,000 on IBM Academic Visiting Fellowship, Yorktown Heights, NY, USA, PI: O. Schenk (Univ. of Basel)

2008-2010 **Swiss National Science Foundation** **University of Basel**
CHF 160,000 on Multiscale Analysis and Simulation for Waves in Strongly Heterogeneous Media, PI: M. Grote (Univ. of Basel), Co-PI: O. Schenk (Univ. of Basel)

2008 **Industry – IBM** **University of Basel**
$ 7,000 on IBM Academic Visiting Fellowship, Yorktown Heights, NY, USA, PI: O. Schenk (Univ. of Basel)

2007-2010 **Swiss National Science Foundation** **University of Basel**
CHF 147,000 on Large-Scale PDE-Constrained Optimization in Hyperthermia Cancer Treatment Planning, PI: H. Burkhart (Univ. of Basel), Co-PI: O. Schenk (Univ. of Basel)

2006-2011 **Industry – Computer Simulation Technology AG** **University of Basel**
CHF 300,000 on Fast Solvers in Large-Scale Parallel Electromagnetic Simulations, PI: O. Schenk (Univ. of Basel)

2007 **Industry – IBM** **University of Basel**
$ 40,000 on IBM Faculty Award for High Performance Biomedical Simulations on the Cell Processor, PI: O. Schenk (Univ. of Basel)

2007 **Industry – IBM** **University of Basel**
$ 3,000 on SUR Grant for HPC Cell BE Processor Cluster, PI: O. Schenk (Univ. of Basel)

2007-2009 **Swiss Commission for Technology and Innovation** **University of Basel**
CHF 474,000 on Computational Business Intelligence for Automotive Production Lines, PI: H. Burkhart (Univ. of Basel), Co-PI: O. Schenk (Univ. of Basel)

2005-2009 **Industry – Intel** **University of Basel**
$ 270,000 on Research Fellowship Grant, PI: O. Schenk (Univ. of Basel)

2003-2004 **ETH Zurich Strategic Excellence Projects** **University of Basel**
CHF 494,000 (Univ. of Basel: CHF 0,000) on Large-Scale Eigenvalue Problems in Optoelectronic Semiconductor Lasers and Accelerator Cavities, PI: P. Arbenz (ETHZ), Co-PI: O. Schenk (Univ. of Basel), et.al.

2003-2004 **Industry – Intel** **University of Basel**
$ 140,000 on Sparse Solution Methods for Intel's Math Kernel Library, PI: O. Schenk (Univ. of Basel)

2003-2004 **Industry – Integrated Systems Engineering AG** **University of Basel**
$ 50,000 on Recent Advances in Sparse Linear Solver Technology for Semiconductor Device Simulations Matrices, PI: O. Schenk (Univ. of Basel)

2003 **Industry – ZEISS** **University of Basel**
CHF 5,000 on Consulting in the area of Numerical Methods for Optoelectronic Simulations, PI: O. Schenk (Univ. of Basel)

2002-2003 **Swiss Commission for Technology and Innovation** **University of Basel**
CHF 378,000 on Multilevel Peconditioning Techniques for Automobile Finite-Element Simulations, PI: H. Burkhart (Univ. of Basel), Co-PI: O. Schenk (Univ. of Basel)

2002 **Industry – IBM** **University of Basel**
$ 16,000 on IBM Academic Visiting Fellowship, PI: O. Schenk (Univ. of Basel)

2000 **Industry – NEC** **ETH Zurich**
CHF 50,000 on Parallel Direct Solution of Large Linear Equation Systems, PI: O. Schenk (ETH Zurich)

2000 **Industry – INPRO** **ETH Zurich**
CHF 50,000 on Solution Techniques for Sparse Matrices from Sheet Metal Forming Simulations, PI: O. Schenk (ETH Zurich)

2000 **Industry – COMPAQ** **ETH Zurich**
CHF 50,000 on Integration of PARDISO into COMPAQ's Extended Mathematical Library CXML., PI: O. Schenk (ETH Zurich)

External Computing Ressources

2024 - 2026 **Erlangen National High Performance Computing Center (NHR@FAU)** **USI**
26K GPU h., 48M CPU h. Large Development Project on Numerical Algorithms, Frameworks, and Scalable Technologies for Extreme-Scale Computing, PI: M. Bollhöfer (TUB), Co-PI: O. Schenk (USI)

2022 **CSCS** **USI**
60K CPU h. Large Development Project on Massively Parallel Global Sensitivity Analysis for Power Systems, PI: J. Kardos (USI), Co-PI: O. Schenk (USI)

2022 **CSCS** **USI**
60K CPU h. Large Development Project on Massively Parallel Global Sensitivity Analysis for Power Systems, PI: J. Kardos (USI), Co-PI: O. Schenk (USI)

2017 **IT4Innovations Directors Discretion** **USI**
500K CPU h. on PRACE petaflop machine ("Anselm") on Parallelized Dimensional Decomposition for Dynamic Stochastic Economic Models, PI: O. Schenk (USI), Co-PI: S. Scheidegger (Uni Zurich)

2016 **IT4Innovations Directors Discretion** **USI**
100K CPU h. on PRACE petaflop machine ("Anselm") on Computational Methods for Solving Stochastic Equilibrium Models, PI: O. Schenk (USI), Co-PI: S. Scheidegger (Uni Zurich)

2014 **DOE INCITE** **USI**
100M CPU h. on DOE petaflop machine CRAY XK7 ("Titan") on Global Seismic Tomography Based on Spectral-Element and Adjoint Method, PI: J. Tromp (Princeton), Co-PI: O. Schenk (USI)

2013 **DOE INCITE** **USI**
100M CPU h. on DOE petaflop machine CRAY XK7 ("Titan") on Global Seismic Tomography Based on Spectral-Element and Adjoint Method, PI: J. Tromp (Princeton), Co-PI: O. Schenk (USI)

2014 **Director's Discretion project** **USI**
2M CPU h. on DOE petaflop machine CRAY XK7 ("Titan") on Real-time Stochastic Optimization of Complex Energy Systems on High Performance Computers, PI: O. Schenk (USI)

Teaching Experience

>11 undergraduate courses, >28 graduate courses, 1 tutorial, including (co)organizing 5 CSCS-USI summer schools on HPC; **since 2012:** >11 undergraduate courses, >19 graduate courses, and including (co)organizing 5 CSCS-USI summer schools on Simulations and HPC. Detailed evaluations can be obtained upon request.

Teaching Experience

>11 undergraduate courses, >28 graduate courses, 1 tutorial, including (co)organizing 5 CSCS-USI summer schools on HPC; **since 2012:** >11 undergraduate courses, >19 graduate courses, and including (co)organizing 5 CSCS-USI summer schools on Simulations and HPC. Detailed evaluations can be obtained upon request.

Fall 2024 **High-Performance Computing** **USI**
65 MSc students

Fall 2024 **Software Atelier: Simulation, Data Science & Supercomputing** **USI**
12 MSc students

Fall 2024 **Emerging topics in advanced computing** **USI**
5 PhD students

Spring 2023 **High-Performance Computing Lab for CSE** **ETH**
29 BSc students

Fall 2022 **Numerical Computing** **USI**
41 BSc students (evaluation grade: 8.44 out of max. of 10)

Fall 2022 **High-Performance Computing** **USI**
31 MSc students (evaluation grade: 8.50 out of max. of 10)

Spring 2022 **Effective High-Performance Computing & Data Analytics Summer School** **USI**
>100 MSc and PhD students

Spring 2022 **High-Performance Computing Lab for CSE** **ETH**
10 BSc students

Fall 2021 **Numerical Computing** **USI**
32 BSc students (evaluation grade: 7.44 out of max. of 10)

Fall 2021 **High-Performance Computing** **USI**
35 MSc students (evaluation grade: 8.50 out of max. of 10)

Spring 2021 **Effective High-Performance Computing & Data Analytics Summer School** **USI**
>80 MSc and PhD students

Spring 2021 **High-Performance Computing Lab for CSE** **ETH**
40 BSc students

Fall 2020 **Numerical Computing** **USI**
32 BSc students (evaluation grade: 8.09 out of max. of 10)

Fall 2020	**High-Performance Computing** 22 MSc students (evaluation grade: 7.63 out of max. of 10)	**USI**
Spring 2020	**Effective High-Performance Computing & Data Analytics Summer School** 50 MSc and PhD students	**USI**
Spring 2020	**High-Performance Computing Lab for CSE** 35 BSc students	**ETH**
Fall 2019	**Numerical Computing** 30 BSc students (evaluation grade: 9.2 out of max. of 10)	**USI**
Fall 2019	**High-Performance Computing** 26 MSc students (evaluation grade: 8.07 out of max. of 10)	**USI**
Spring 2019	**Introduction to Doctoral Studies** 10 PhD students	**USI**
Spring 2019	**CSCS-USI Summer School on Effective HPC and Data Analytics** $\approx$ 30 MSc and PhD students (evaluation grade: 4.8 out of max. of 5).	**USI/CSCS**
Spring 2019	**Software Atelier: Simulation, Data Science & Supercomputing** 10 MSc students (evaluation grade: 9.33 out of max. of 10)	**USI**
Fall 2018	**Numerical Computing** 34 BSc students (evaluation grade: 7.91 out of max. of 10)	**USI**
Fall 2018	**High-Performance Computing** 25 MSc students (evaluation grade: 8.41 out of max. of 10)	**USI**
Fall 2018	**Introduction to Doctoral Studies** 21 PhD students	**USI**
Spring 2018	**CSCS-USI Summer School on Effective HPC** $\approx$ 30 MSc and PhD students (evaluation grade: 4.7 out of max. of 5).	**USI/CSCS**
Spring 2018	**Software Atelier: Simulation, Data Science & Supercomputing** 9 MSc students (evaluation grade: 9.33 out of max. of 10)	**USI**
Spring 2018	**Introduction to Doctoral Studies** 14 PhD students	**USI**
Fall 2017	**Numerical Computing** 33 BSc students (evaluation grade: 7.11 out of max. of 10)	**USI**
Fall 2017	**High-Performance Computing** 25 MSc students (evaluation grade: 8.9 out of max. of 10)	**USI**
Fall 2017	**Privatissimum** 9 BSc students (evaluation grade: 8.4 out of max. of 10)	**USI**
Spring 2017	**CSCS-USI Summer School on Effective HPC** $\approx$ 20 MSc and PhD students (evaluation grade: 4.8 out of max. of 5).	**USI/CSCS**
Spring 2017	**Software Atelier: Simulation, Data Science & Supercomputing** 5 MSc students (evaluation grade: 8.5 out of max. of 10)	**USI**
Fall 2016	**Numerical Computing** 21 BSc students (evaluation grade: 8.94 out of max. of 10)	**USI**
Fall 2016	**High-Performance Computing** 5 MSc students (evaluation grade: 9.0 out of max. of 10)	**USI**
Spring 2016	**Software Atelier: Supercomputing and Simulations** 5 MSc students (evaluation grade: 9.67 out of max. of 10)	**USI**
Spring 2016	**CSCS-USI Summer School on Effective HPC** $\approx$ 30 MSc and PhD students (evaluation grade: 4.8 out of max. of 5).	**USI/CSCS**
Fall 2015	**Numerical Computing** 12 BSc students (evaluation grade: 9.2 out of max. of 10)	**USI**
Fall 2015	**High-Performance Computing** 7 MSc students (evaluation grade: 9.0 out of max. of 10)	**USI**

Spring 2015 **CSCS-USI Summer School on Effective HPC** **USI/CSCS**
≈ 30 MSc and PhD students (evaluation grade: 4.8 out of max. of 5). Video available at `http://youtu.be/3enmB6hzBGM` (produced by Multimedia Services of ETH Zurich)

Spring 2015 **Software Atelier: Supercomputing and Simulations** **USI**
6 MSc students (evaluation grade: 8.9 out of max. of 10)

Spring 2015 **Introduction to Computational Science** **USI**
26 BSc students (evaluation grade: 7.6 out of max. 10)

Fall 2014 **High-Performance Computing** **USI**
7 MSc students (evaluation grade: 10.0 out of max. of 10)

Fall 2014 **Numerical Computing** **USI**
2 BSc students (evaluation grade: 9.5 out of max. 10)

Spring 2014 **Special Topics in Mathematics&Computational Science** **USI**
7 MSc students (evaluation grade: 9.0 out of max. of 10)

Spring 2014 **Parallel and Distributed Computing Lab** **USI**
7 MSc students (evaluation grade: 9.0 out of max. of 10)

Spring 2014 **Computational Science** **USI**
≈ 20 BSc students, (evaluation grade: 7.1 out of max. of 10)

Spring 2014 **CSCS-USI Summer School on Effective HPC** **USI/CSCS**
30 MSc and PhD students (evaluation grade: 4.2 out of max. of 5)

Fall 2013 **Parallel and Distributed Computing** **USI**
cotaught with W. Binder & F. Pedone, ≈ 40 MSc students (evaluation grade: 8.1 out of max. of 10)

Spring 2013 **Special Topics in Mathematics&Computational Science** **USI**
6 MSc students (evaluation grade: —)

Spring 2013 **Parallel and Distributed Computing Lab** **USI**
7 MSc students (evaluation grade: —)

Spring 2013 **Computational Science** **USI**
≈ 20 BSc students (evaluation grade: 6.7 out of max. of 10)

Spring 2013 **CSCS-USI Summer School on Effective HPC** **USI/CSCS**
30 MSc and PhD students grade: (4.1 out of max. of 5)

Fall 2012 **Parallel and Distributed Computing** **USI**
cotaught with F. Pedone, ≈ 52 MSc students (evaluation grade: 7.2 out of max. of 10)

Spring 2011 **High Performance Computing** **University of Basel**
cotaught with H. Burkhart, ≈ 15 MSc students

Spring 2010 **High Performance Computing** **University of Basel**
cotaught with H. Burkhart, ≈ 15 MSc students

Spring 2009 **High Performance Computing** **University of Basel**
cotaught with H. Burkhart, ≈ 15 MSc students

Spring 2008 **High Performance Computing** **University of Basel**
cotaught with H. Burkhart, ≈ 20 MSc students

Spring 2008 **Programming Cell Processors and GPUs for High-Performance Simulations** **PDCN 2008**
cotaught with Matthias Christen, ≈ 25 participants

Spring 2007 **High Performance Computing** **University of Basel**
cotaught with H. Burkhart, ≈ 15 MSc students

Fall 2006 **Seminar Life Science Informatics** **University of Basel**
cotaught with H. Burkhart, F. Baty ≈ 10 MSc students

Fall 2006 **Seminar Parallelismus** **University of Basel**
cotaught with H. Burkhart ≈ 10 MSc students

Spring 2005 **Programmieren II** **University of Basel**
≈ 20 BSc students

Spring 2002 **Algorithms in Computational Science and Engineering** **University of Basel**
≈ 15 MSc students

Advising and Mentoring

I advise(d) 8 Postdocs, >15 PhD students, >20 MSc students, >15 BSc students, and serve(d) on the committee of >6 PhD students (external member) and 18 PhD students (internal member).

Postdoctoral Research Assistants **USI**

Aryan Eftekhari (April 2021 – present).
Dimosthenis Pasadakis (March 2023 – present).
Matteo Pegoraro (September 2026 – present).
Juraj Kardos (April 2020 – May 2023); first job: DXT, Lugano.
Edoardo Vecchi (June 2023 – May 2024); first job: SUPSI, Lugano.
Drosos Kourounis (January 2012 – September 2018); first job: NEPLAN, Zurich.
Simplice Donfack (April 2014 – December 2015); first job: INRIA, Paris.
Patrick Sanan (May 2014 – September 2017); first job: ETH Zurich, Switzerland.
Matthias Christen (January 2013 – December 2015); first job: Vanamco, Zurich.

PhD students **USI**

Alberto Finardo (September 2026 – present)
Lorenzo Migliari (September 2025 – present)
Daniel Vega (September 2024 – present)
Malik Lechekhab (PhD 2024)
Tim Holt (PhD 2024)
Lisa Gaedke-Merzhäuser (PhD 2024)
Dimosthenis Pasadakis (PhD 2023)
Aryan Eftekhari (PhD 2021)
Radim Janalik (PhD 2021)
Juraj Kardos (PhD March 2020)
Fabio Verbosio (PhD 2019)
Max Rietmann (PhD 2015); first job: ETH Zurich, Switzerland.

PhD students **University of Basel**

Johannes Huber (PhD 2013), coadvised with M. Grote; first job: SAFEmine, Switzerland.
Madan Sathe (PhD 2012); first job: Ernst & Young Consulting, Switzerland.
Matthias Christen (PhD 2011), coadvised with H. Burkhart; first job: USI, Switzerland.

PhD students (internal committee member) **USI**

Xavier Coiteux-Roy (PhD, 2022)
Alena Kopanicakova (PhD, 2020)
Hardik Kothari (PhD, 2021)
Georgios Zacharopoulos (PhD, 2020)
Diego Pizzagalli (PhD, 2020)
Xiaochen Chou (PhD, 2020)
Paul Erker (PhD, 2019)
Marchenko Ganna (PhD, 2019)
Murodzhon Akhmedov (PhD, 2018)
Eduardo Feo Flushing (PhD, 2017)
Igor Kaitovic (PhD, 2017)
Kirill Lykov (PhD, 2017)
Marijn Stollenga (PhD, 2016)
Daniele Sciascia (PhD 2015)
Lea Conen (PhD 2015)
Johannes Steiner (PhD 2014)
Marco Favino (PhD 2014)
Sebastian Schmitz (PhD 2014)

PhD students (external committee member)
Christie Alappat (PhD 2025), FAU Erlangen, Germany.
Rafael Ravedutti Lucio Machado (PhD 2025), FAU Erlangen, Germany.
Chaulio Ferreira (PhD 2019), Technical University Munich, Germany.
Zakariae Jorti (PhD 2019), Sorbonne University, Paris, France.
Mauro Calderara (PhD 2016), ETH Zurich, Switzerland.
Pierre Jolivet (PhD 2014), Universitè de Grenoble & Universitè Pierre et Marie Curie, France.
Long Qu (PhD 2014), Universitè Paris Sud, Orsay, France.
Johannes Langguth (PhD 2011), University of Bergen, Norway.

MSc students (subset) **USI**
Devulapalli Lakshmi Aparna (MSc 2024)
Jami Naga Venkata Sai Jitin (MSc 2023)
Pratyai Mazumder (MSc 2023)
Zenin Easa Panthakkalakath (MSc 2023)
Julien Schmidt (MSc 2023)
Nicola Esposito (MSc 2022)
Nicholas Robertson (MSc 2022)
Nicholas Robertsons (MSc 2021)
Thomas Koester (MSc 2018, grade: 9.0)
Toby Simpson (MSc 2017, grade: 10.0)
Dimosthenis Pasadakis (MSc 2017, grade: 10.0)
Edoardo Vecchi (MSc 2016, grade: 8.0)
Aryan Eftekhari (MSc 2016, grade: 10.0)
Radim Janalik (MSc 2015, grade: 10.0)
Alena Kopanicakova (MSc 2015, grade: 8.5)

MSc students **University of Basel**
Dominique Meyer (MSc 2010), coadvised with M. Grote
Bernhard Egger (MSc 2009)
Matyas Filep (MSc 2008), coadvised with M. Grote
Eric Kreuzer (MSc 2007)
Roman Baier (MSc 2007)
Michael Martinec (MSc 2007)
Johnnes Mittmann (MSc 2004), coadvised with M. Grote
Christian Schenk (MSc 2003)
Elisa Müller (MSc 2002)

BSc students **USI**
Alessandro Cravioglio (BSc 2023)
Gianmarco De Vita (BSc 2021)
Nicola Esposito (BSc 2020)
Gary Folli (BSc 2020)
Seyyed Abedin Husseini (MSc 2020)
Lazar Najdenov (BSc 2020)
GianMarco De Vita (BSc 2021, grade: 9.0)
Lazar Najdenov (BSc 2020, grade: 10.0)
Nicola Esposito (BSc 2020, grade: 10.0)
Gary Folli (BSc 2020, grade: 10.0)
Seyyed Abedin Husseini (BSc 2019, grade: 8.5)
Vishnu Karan Arudpiragasam (BSc 2019, grade: 8.5)
Vanessa Braglia (BSc 2018, grade: 8.5)
Samuel A. Cruz Alegria (BSc 2018, grade: 8.5)
Martin Štrambach (BSc 2017, grade: 9.0), with Czech Technical University (Prague)
Simon Hrabec (BSc 2016, grade: 9.0), with Czech Technical University (Prague)
Soleimani Bidhendi Hanieh (BSc 2016, grade: 9.0)
Simone Raimondi (BSc 2015, grade: 10.0)

Service & Editorial Boards

Journal Editorial Board

2019–present **Editorial board** **ACM Platform for Advanced Scientific Computing Conference Proceedings**
Editor of the Journal ACM Platform for Advanced Scientific Computing Conference.

2019–2025 **Associate Editor** **ACM Transaction of Mathematical Software**
Associate Editor of the journal ACM Transaction of Mathematical Software.

2020–2023 **Associate Editor** **IEEE Transactions on Parallel and Distributed Systems**
IEEE Transactions on Parallel and Distributed Systems, special section on Innovative R&D toward the Exascale Era

2017 **Guest Editor** **CCPE**
The Journal on Concurrency and Computation: Practice and Experience stresses papers in broad computer and computational science areas with a focus con concurrency and compututation.

2012-2017 **Associate Editor** **SIAM SISC**
The SIAM Journal on Scientific Computing contains research articles on numerical methods and techniques for scientific computation.

2012, 2014, 2016, 2017 **Guest Editor** **PARCO**
Parallel Computing is an international journal presenting the practical use of parallel computer systems, including high performance architecture, system software, programming systems and tools, and applications.

2004 **Guest Editor** **JFGCS**
Future Generation Computer Systems is an international journal with a focus on new theory and technological progress supporting a better understanding of wide-area, fully distributed computing systems.

Current Leadership Service

SIAM PP **Conference Proceedings of the SIAM Conference on Parallel Processing for Scientific Computing, 2018–present,** Steering Committee Member

ACM PASC **ACM Platform for Advanced Scientific Computing Conference Series, 2014–present** Steering Committee & Organizing Committee Co-Chairs

Former Significant Leadership and Service Positions

SIAM **Chair** **SIAM Activity Group on Supercomputing**
Nominated by a committee, elected by all SIAG members. The SIAM Activity Group on Supercomputing provides a forum for computational mathematicians, computer scientists, computer architects, and computational scientists to exchange ideas on mathematical algorithms and computer architecture needed for simulations on high-performance computer systems, period 2020–2021

SCCER **Project Board Member** **SCCER-FURIES**
The Swiss SCCER Future Swiss Electrical Infrastructure (FURIES) joins the competencies of the top Swiss academic and industrial actors in the area of power and energy systems to shape the next generation of the electrical Swiss infrastructure, period 2013–2021

SIAM **Gene Golub SIAM Summer School 2019 on High Performance Data Analytics, 2019,** Co-Organizer with L. Grigori, M. Knepley, R. Vuduc, Aussois, France, June 17-30, 2019.

SIAM **Vice Chair** **SIAM Activity Group on Supercomputing**
Nominated by a committee, elected by all SIAG members. The SIAM Activity Group on Supercomputing provides a forum for computational mathematicians, computer scientists, computer architects, and computational scientists to exchange ideas on mathematical algorithms and computer architecture needed for simulations on high-performance computer systems, period 2018–2019

IEEE/CiSE **Editor-in-Chief Reappointment Committee for Computing in Science and Engineering (IEEE CiSE), 2019,** Committee member.

SIAM PP18 **Conference Co-Chair** **SIAM PP18**
The SIAM Conference on Parallel Processing provides a forum for computational mathematicians, computer scientists, computer architects, and computational scientists to exchange ideas on mathematical algorithms and computer architecture needed for simulations on high-performance computer systems (>700 participants).

SIAM SISC **Associate Editor** **SIAM SISC**
SIAM Journal on Scientific Computing, period 2012-2017

SIAG/SC **SIAM Activity Group on Supercomputing, 2016-2017,** Program Director SIAM SIAG on Supercomputing

PASC Conference **ACM Platform for Advanced Scientific Computing Conference,** Conference Co-Chair (2014, 2015, 2016, 2017)

PMAA **International Workshop Series on Parallel Matrix Algorithms and Applications,** Steering Committee, period 2012-2020.

PASC **Swiss Platform for Advanced Scientific Computing (PASC)** Project Leadership Position, period 2012-2016.

SIAM PP16 **SIAM Conference on Parallel Processing for Scientific Computing, 2016,** Organizing Committee

IEEE CSE 2015 **IEEE International Conference on Computational Science and Engineering, 2015,** Chair for the conference track on "Scientific and Engineering Computing"

SPEEDUP **The Speedup Society: The Swiss Forum for High-Performance Computing,** Vice-president (2008-2015)

Award Committee Service (subset)

SIAM Fellow 2024 **Chair SIAM Fellow Award Committee.** The SIAM Fellowship is an award and fellowship that recognizes outstanding members of the Society for Industrial and Applied Mathematics (SIAM).

SIAG/CSE **Chair IAM/ACM Prize in Computational Science & Engineering, 2025,** The 2025 SIAM/ACM Prize in Computational Science & Engineering will be awarded at the 2025 SIAM Conference on Computational Science and Engineering (CSE25).

SIAG/GS 2023 **Chair SIAM SIAG Geosciences Career Award Committee.** The SIAM Activity Group on Geosciences Career Prize is awarded every two years to an outstanding senior researcher who has made broad and distinguished contributions to the field of geosciences.

SIAG/SC 2020 **Chair SIAM SIAG/Supercomputing Award Committee.** The SIAG/SC Best Paper Prize is awarded biennially to authors of the most outstanding paper, as determined by the prize committee, making significant contributions in the field of parallel scientific and engineering computing.

SIAG/CSE 2019 **Chair SIAM SIAG on Computational Science & Engineering Supercomputing Award Committee.** The SIAG/CSE Best Paper Prize is awarded biennially to authors of the most outstanding paper, as determined by the prize committee, making significant contributions in the field of Computational Science & Engineering.

SIAG/SC **Chair SIAM SIAG/Supercomputing Best Paper Prize Committee, 2016,** Committee Chair for the SIAM Activity Group on Supercomputing (SIAG/SC) Best Paper Prize

PASC17 **PASC17 PhD Award Committee Member.** PhD Award sponsored by the Swiss Graduate Program FoMICS "Foundations in Mathematics and Informatics for Computer Simulations in Science and Engineering", led by the Institute of Computational Science at USI.

ISC **ISC PhD Forum Award Committee Member.** The International Supercomputing Conference (ISC) is a yearly conference on supercomputing. ICS PhD Forum Program Committee is an international committee of HPC experts and it selected one contribution to receive the "ISC PhD Forum Award" (2016, 2017).

Former Advisory Service (subset)

2024 **Evaluation Panel** **BMBF, Germany**
Member of an international evaluation panel for the BMBF project "Artificial Intelligence Competence Center".

2023 **Evaluation Panel** **WWTF, Austria**
Member of an international evaluation panel for the Vienna Science and Technology Fund, "Information and Communication Technology" (ICT) thematic programme.

2022 **Evaluation Panel** **BMBF, Germany**
Member of an international evaluation panel for the BMBF project "Artificial Intelligence Competence Center".

2022 **Evaluation Panel** **BMBF, Germany**
Member of an international evaluation panel for the SCALEXA project "Neue Methoden und Technologien für das Exascale-Höchstleistungsrechnen".

2021 **Evaluation Panel** **INRIA, France**
Member of an international evaluation panel of INRIA Evaluation Committee.

2020 **Reviewer** **University of Stuttgart, Germany**
External Reviewer for a Junior Professor position in Stuttgart on "Sustainability and Usability of Simulation Software" at Stuttgart Center for Simulation Science

2020 **Evaluation Panel** **IT4Innovations National Supercomputing Center, Czech Republic**
Member of international evaluation panel for Technical University of Ostrava, IT4Innovations and Department of Computer Science.

2019 **Proposal Reviewer** **SNF Ambizione Grant, Switzerland**
Swiss National Science Foundation, Research proposal on computing and computational science, requesting a grant of CHF 750.000.

2019 **Reviewer** **Friedrich-Schiller-University Jena, Germany**
External Reviewer for a W2/W3-Professur on "Skalierbare daten- und rechenintensive Analysen" at Friedrich-Schiller-University Jena

2018 **Proposal Reviewer** **PRACE Fifth Implementation Phase (PRACE-6IP), Europe**
PRACE (Partnership for Advanced Computing in Europe), proposal reviewer for package 8 on "forward-looking software solutions".

2018 **Proposal Reviewer** **John von Neumann Institute for Computing (NIC), Jülich, Germany**
Research proposal on accelerated optimization of energy system models asking for 2.584M core hours.

2018 **Scientific Reviewer** **PRACE Projects, Bruxelles, Belgium**
Scientific reviewer of PRACE research proposals asking for up to 88M core hours on Piz Daint at CSCS.

2017 **Proposal Reviewer** **John von Neumann Institute for Computing (NIC), Jülich, Germany**
Research proposal on accelerated optimization of energy system models asking for 1.846M core hours.

2017 **Reviewer** **Friedrich-Schiller-University Jena, Germany**
External Reviewer for a W2-Professur on "Skalierbare daten- und rechenintensive Analysen" at Friedrich-Schiller-University Jena

2017 **Proposal Reviewer** **Deutsche Forschungsgemeinschaft (DFG), Bonn, Germany**
Research proposal on graph algorithms asking for €250.000

2016 **Proposal Reviewer** **ETH Grant, ETH Zurich, Switzerland**
Research proposal on Partial differential Solvers for Fluid Simulations asking for CHF 240.000.

2016 **Proposal Reviewer** **Industrial Research Fund KU Leuven, Belgium**
Research proposal on Large-Scale Numerical Computing to the Research Foundation of KU Leuven asking for $ 1400.000.

2014 **Proposal Reviewer** **Research Foundation Flanders, Belgium**
Postdoctoral Fellow application to the Research Foundation Flanders asking for $ 400.000 per proposal.

2013 **Proposal Reviewer** **French National Research Agency, France**
Evaluation Committee of the MN program of the French National Research Agency asking for $ 600.000 per proposal.

2013 **Proposal Reviewer** **Czech Science Foundation, Czech Republic**
Evaluation Committee for individual projects of the Czech Science Foundation.

2012 **Proposal Reviewer** **French National Research Agency, France**
Evaluation Committee of the MN program of the French National Research Agency asking for $ 600.000 per proposal.

Faculty Service

2014–present **Master Director** **USI**
Director of the Computational Science Master program at USI.

2012-present **PhD Prospectus Committee Member** **USI**
I am serving on a regular basis on evalution committees of PhD, MSc, and BSc students.

2022–2026 **Student Affair Committee** **USI**
Member of the Student Affair Committe at INF/USI.

2012-2024 **USI–CSCS** **USI**
I am serving as a faculty contact person to the Swiss Center of Supercomputing (CSCS).

2017–2019 **PhD Director** **USI**
Director of the two PhD Programs in Computational Science and Informatics

2013–2021 **Swiss Competence Center on Energy Research** **USI**
I served as a faculty representative on the project board of the SCCER Future Swiss Electrical Infrastructure (FURIES) project which joins the competencies of the several Swiss academic and industrial actors in the area of power and energy systems.

2017 **Committee member** **USI**
Member of a faculty committee for a faculty position on Computational Energy(level: full professor).

2017 **Committee member** **USI**
Member of a faculty committee for a faculty position on Data Science (level: full professor).

2017 **Promotion Committee Member** **USI**
Member of a faculty committee for a promotion process from associate professor to full professor.

2015-2016 **Promotion Committee Member** **USI**
Member of a faculty committee for a promotion process from assistant professor to senior assistant professor.

2014 **Exhibition Organizing Committee Member** **USI**
Member of a faculty committee of the 10 year informatic anniversary exhibition, responsible for the computational science booth.

2008 **Promotion committee member** **University of Basel**
Member of a faculty committee for a faculty position on Biomedical Data Analysis (level: associate professor).

2004-2011 **Committee member** **University of Basel**
Member of a faculty committee for a new BSc program on Computational Science.

Selected Invited Keynote or Seminar Talks

Only listing keynote or invited seminar talks since 2012, not counting normal conference or workshop presentations (only subset):

Plenary **Conference on Networks For Science, Workshop on Network, Analysis, and Learning for Science,David Brower Center** **Berkeley, USA**
Title: Accelerated sparsity in quadratic inversion: Computational challenges in high-dimensional settings, Oct. 2025

Plenary **Conference on Fast Direct Solvers, Department of Mathematics** **Purdue University, USA**
Title: Towards Scalable Selected Inversion Factorization Algorithms, Oct. 2021

Plenary **Invited Seminar** **Los Alamos National Laboratory, USA**
Title: Advancing HPC direct solvers with applications in large-scale power grid optimization, Feb. 2020

Plenary **Invited Workshop** **Huawei European Research Symposium, Paris**
Title: Advancing HPC direct solvers with applications in large-scale power grid optimization, Oct. 2019

Plenary **Invited Workshop** **ParNum 2019, Dubrovnik**
Title: Advancing HPC direct solvers with applications in large-scale power grid optimization, Oct. 2019

Plenary **Conference on Fast Direct Solvers, Department of Mathematics** **Purdue University, USA**
Title: Towards Scalable Selected Inversion Factorization Algorithms, Nov. 2018

Semi-Plenary **ISC 2017 High Performance Conference, Session on Algorithms for Extreme Scale in Practice Frankfurt, Germany**
Title: Towards Extreme Scalable Selected Inversion Algorithm for Green's Function Calculation in Nanoelectronic Device Simulation, June 2017

Keynote **HPCSE17 University of Ostrava & IT4Innovations National Supercomputing Center, Czech Republic**
Title: Algorithms for Extreme Scale in Practice, May 2017

Distinguished Lecturer **Supercomputing Division, Information Technology Center, The University of TokyoTokyo, Japan**
Title: Direct solvers for sparse matrices: Introduction, applications and supercomputing, Dec. 2016

Keynote **1st International Symposium on Research and Education of Computational Science (RECS), University of Tokyo** **Tokyo, Japan**
Title: PASC, CSCS, ICS - Three initiatives to advance research and education in computational science in Switzerland, Dec. 2016

Invited Seminar **Zurich Initiative on Computational Economics** **Zurich, Switzerland**
Applications of Large-Scale Nonlinear Optimization at the Petascale: Achievements and Perspectives in Switzerland, February 2016

Keynote **First Annual Meeting of Applied Mathematics: Frontier Aspects of Applied MathematicsNational Taiwan University, Taipei, Taiwan**
Extreme-Scale Stochastic Optimizations: HPC, Numerics and Applications, December 2015

Invited Seminar — **Zurich Initiative on Computational Economics** — **Zurich, Switzerland**
Applications of Large-Scale Nonlinear Optimization at the Petascale: Achievements and Perspectives in Switzerland, February 2015

Invited Seminar — **Pacific Institute for the Mathematical Sciences** — **Vancouver, Canada**
Performance Engineering of Seismic Simulations for Future Exascale Architectures, January 2015

SCAIM UBC — **Scientific Computing, Applied & Industrial Mathematics Seminar** — **Vancouver, Canada**
Performance Engineering & Sparse Matrices: Introduction, Applications and Supercomputing, January 2015

Uni Basel — **Numerical Analysis Seminar** — **University of Basel, Switzerland**
Performance Engineering & Sparse Matrices: Introduction, Applications and Supercomputing, Dec. 2014

Keynote ISP2S2 — **JST/CREST International Symposium on Post Petascale System Software** — **Kobe, Japan**
Performance Engineering for Large-Scale Stochastic Optimizations on Petascale Architectures, Dec. 2014

Keynote ExaStencils'14 — **SPPEXA Workshop ExaStencils 2014** — **Technical University of Dresden, Germany**
High-Level Software Approaches for HPC: Overview and Case Study (declined), March 2014

Keynote ASCETE'14 — **ASCETE Workshop on advanced numerical methods for earthquake and tsunami simulation on modern HPC systems** — **Sudelfeld, Germany**
Seismic Structured Grid Simulations on Many-Core Architectures, May 2014

ZICE'14 — **Zurich Initiative on Computational Economics** — **Zurich, Switzerland**
Applications of Large-Scale Nonlinear Optimization at the Petascale: Achievements and Perspectives in Switzerland, February 2014

Semi-Keynote HPCSE13 — **HPCSE13** — **University of Ostrava & IT4Innovations National Supercomputing Center, Czech Republic**
Interior Point Methods for Large-Scale Stochastic Optimization on High-Performance Computers, May 2013

Keynote HPCAdvisory Council'12 — **HPC Advisory Council Switzerland Conference** — **Lugano, Switzerland**
Large-Scale PDE-Constrained Optimization on HPC Architectures: Applications, Algorithms and Software, March 2012

Keynote Teratec Forum'12 — **Teratec International meeting for Simulation and HPC** — **Ecole Polytechnique, France**
Exascale Computing Research Challenges, June 2012

Semi-Keynote ACSS'12 — **Accelerating Computational Science Symposium 2012** — **Washington, DC, USA**
Large-Scale Seismic Imaging on HPC Architectures: Applications, Algorithms and Software, May 2012

Technical Program Committee Member (alphabetically, selected)

I served on over >100 program committees of computer science conferences over the last ten years including all major conferences on computing such as IEEE International Parallel & Distributed Processing Symposium, ACM/IEEE Conference on High Performance Computing, Networking, Storage and Analysis SC, and others.

CoSaS — **Symposium "Computational Science at Scale (CoSaS)", DFG priority program Software for ExaScale Computing (SPPEXA)**, 2018

CSC — **SIAM Workshop on Combinatorial Scientific Computing**, 2012, 2014, 2018

CENG — **International Symposium on Computer and Information Sciences**, 2010

DAGSTUHL — **Dagstuhl Seminars**, 2009, 2015

DD — **International Conference on Domain Decomposition Methods**, 2013

ECT — **International Conference on Engineering Computational Technology**, 2006, 2008, 2010, 2012

FMC — **Facing the Multicore-Challenge Conference**, 2010, 2011, 2012

HipHaC — **New Frontiers in High-performance and Hardware-aware Computing**, 2011

HiStencils — **International Workshop on High-Performance Stencil Computations**, 2014

HPDC — **International Symposium on High-Performance Parallel and Distributed Computing**, 2023

HiPEAC — **International HiPEAC conference**, 2020

HiPC — **IEEE International Conference on High Performance Computing**, 2007, 2008, 2013, 2015

HPCS — **International Conference on High Performance Computing & Simulation**, 2014

ICPP — **IEEE International Conference on Parallel Processing**, 2013, 2021, 2022

IHPCES — **International Workshop on Advances in High-Performance Computational Earth Sciences: Applications and Frameworks**, 2013, 2014, 2016, 2017, 2018, 2019, 2020, 2021, 2022

IPDPS **IEEE International Parallel & Distributed Processing Symposium**, 2010, 2014, 2016, 2017, 2018, 2019, 2020, 2021, 2025

ISC **International Supercomputing Conference**, 2016, 2017, 2025

ICCS **International Conference on Computational Science** 2022

PASC **Platform for Advanced Scientific Computing Conference Series**, 2014, 2015, 2016, 2017

PDCN **International Conference on Parallel and Distributed Computing and Networks**, 2011

PMAA **International Workshop on Parallel Matrix Algorithms and Applications**, 2008, 2010, 2012, 2014, 2016, 2018

PPAM **International Conference on Parallel Processing and Applied Mathematics**, 2013, 2015, 2019

POWER **14th IEEE PowerTech**, 2021

PASC **Platform for Advanced Scientific Computing Conference Series**, 2014, 2015, 2016, 2017

SBAC-PAD **International Symposium on Computer Architecture and High Performance Computing**, 2009, 2016, 2017, 2018

SC **ACM/IEEE Conference on High Performance Computing, Networking, Storage and Analysis**, 2008, 2010, 2013, 2014, 2015, 2016, 2019, 2025, 2026

SPEEDUP **Speedup Workshops on High-Performance Computing**, 2003, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015

Professional Organizations

IEEE and IEEE Computer Society, Senior Member

Association for Computing Machinery (ACM), Senior Member

ACM Special Interest Group on High Performance Computing (ACM SIGHPC), Senior Member

Society for Industrial and Applied Mathematics (SIAM), Fellow Member

Selected Research Visits (> two week)

(not counting normal conference or workshop attendance)

Los Alamos National Laboratory, USA, 2020

Center of Computational Science, University of Tokyo, Tokyo, Japan, 2016, 2018

Center of Advanced Study in Theoretical Sciences (CASTS), Taipei, Taiwan, 2015

IBM Thomas Watson Research Center, USA, 2002, 2003, 2007, 2009, 2010, 2011

IBM Research Lab Austin, USA, 2008

Center of Scientific Computing, University of Warwick, UK, 2008, 2009

Department of Computer Science, University of British Columbia, Vancouver, CA, 2006, 2007, 2008, 2015

Weierstrass-Institute of Applied Analysis and Stochastic, Berlin, Germany, 2004, 2007, 2010

Argonne National Lab, USA, 2008, 2012

Purdue University, USA, 2009, 2010, 2011

Academy of Sciences, Department of Computer Science, Prague, CZ, 2004

Stanford University, USA, 2010

NVIDIA Research, USA, 2010

Banff International Research Station of Mathematical Innovation, Canada, 2009

Intel Research Lab Oregon, USA, 2008

ZIB Berlin, Germany, 2007

KTH Stockholm, Sweden, 2006

TU Berlin, Germany, 2006

Publications

Total: (only last 10 years): >50 journal papers, 1 book, 6 book chapters, >35 top computer science conference papers, **>8'500 citations**, h-index: >38 (Google Scholar); full publication list available at: `http://usi.to/ovv`. Olaf Schenk and his PhD students and postdocs are underlined.

Peer-reviewed Journal Publications

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PARCO P. Arbenz, L. Grigori, R. Krause, O. Schenk, *Guest editorial: Special Issue on Parallel Matrix Algorithms and Applications (PMAA'14, Part 2)*, Parallel Computing, pp. 135-136, August 2016, DOI: 10.1016/j.parco.2016.08.003

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PARCO C. Bekas, A. Grama, O. Schenk, Y. Saad, *Guest editorial: Special Issue on Parallel Matrix Algorithms and Applications (PMAA'12)*, Parallel Computing, Volume 40, Issue 7, pp. 159–160, July 2014. DOI: 10.1016/j.parco.2014.06.001

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JFGCS P. Arbenz, H. Burkhart, O. Schenk, E. Mähle, *SPEEDUP/PARS Workshop on Modern Algorithms in Computational Sciences and Information Technology*, J. of Future Generation Computer Systems, 21 (8), pp. 1249–1250, 2005, DOI: 10.1016/j.future.2004.09.002

Patent

European Patent D. Kourounis, O. Schenk, *Processing of Multiperiod Optimal Power Flow Problems using Structure-Exploiting Interior Point Methods*, European Patent Office., PCT - International patent No. PCT/EP2017/057632, March 2017, European Patent Nr. 17719497.4, USA Patent Nr: 16/498,676.

Monographic Thesis

PhD Thesis

Title *Parallel Sparse LU Factorization Methods on Shared Memory Multiprocessors*

Supervisors Professor Wolfgang Fichtner (ETH Zurich) & Professor Martin Gutknecht (ETH Zurich)

Description This dissertation presents new techniques for solving large sparse symmetric and structurally symmetric linear systems on shared memory high performance parallel computers, using Gaussian elimination with complete supernode pivoting. Shared memory multiprocessors have recently attracted considerable interest in scientific and engineering computing and the objective is to increase the parallel performance on these architectures. The efficiencies of the algorithms are demonstrated for matrices from various application fields and for a variety of high performance computers

Place ETH Zurich, 2000, Series in Microelectronics, Volume 89, Hartung-Gorre, ISBN 3-89649-532-1.

doi dx.doi.org/10.3929/ethz-a-003876213

Habilitation Thesis

Title *Scientific Computing - Algorithms, Combinatorics, High-Performance Computing, and Applications*

Place Department of Computer Science and Mathematics, Faculty of Science, University of Basel, Switzerland, March 2010.

Description This research introduced some of the many ways in which combinatorial abstractions and numerical algorithms in computer science play a role in computational science. It is explained how these algorithms might be useful in scientific applications. It deals in particular with scientific algorithmic research and high-performance computing architectures to enable large-scale simulations and optimizations. This is a discipline where computing power is a critical issue in almost every application. Complex simulation models containing more degrees of freedom not only require more available space in memory, but also demand faster computing architectures, sophisticated algorithms, and modern HPC technology to compute solutions to these models within an acceptable time frame. In general, the research spans the entire stack, from advanced information technology to scientific algorithmic research.

Publication Impact

Citations

Number of citations for my ten most cited papers (Source: Google Scholar as of July 3, 2026, scholar.google.com)

citations	paper
2024	Solving unsymmetric sparse systems of linear equations with PARDISO (DOI)
706	On fast factorization pivoting methods for sparse symmetric indefinite systems (DOI)
440	Patus: A code generation and autotuning framework for parallel iterative stencil computations on modern microarchitectures (DOI)
413	PARDISO: a high-performance serial and parallel sparse linear solver in semiconductor device simulation (DOI)
274	On large-scale diagonalization techniques for the Anderson model of localization (DOI)
241	Matching-based preprocessing algorithms to the solution of saddle-point problems in large-scale nonconvex interior-point optimization (DOI)
249	Efficient sparse LU factorization with left-right looking strategy on shared memory multiprocessors (DOI)
230	An augmented incomplete factorization approach for computing the Schur complement in stochastic optimization (DOI)
197	Toward the next generation of multiperiod optimal power flow solvers in (DOI)
193	Fast methods for computing selected elements of the Green's function in massively parallel nanoelectronic device simulation (DOI)

Impact factors

Impact factors of the journals I have published in (Source: Journal Citation Reports 2016, Thomson Scientific.):

Journal	Impact Factor 2016	5-Year Impact Factor
IEEE Transactions on Pattern Analysis and Machine Intelligence	24.31	24.31
PNAS	12.78	12.78
IEEE Transactions on Power Systems	5.68	7.26
SIAM Review	4.89	7.26
Genetics	4.55	5.09
J. of Future Generation Computer Systems	3.99	4.78
Geochem. Geophys. Geosyst.	3.20	3.41
Computer&Structures	2.84	3.18
Journal of Computational Physics	2.74	3.12
IEEE Computing in Science & Engineering	2.07	3.09
Mathematical Programming Series B	2.44	2.98
IEEE Transactions on Electron Devices	2.60	2.84
SIAM J. Sci. Comput	2.19	2.80
Journal of Advanced Manufacturing Technology	2.20	2.29
Journal of Computational Geosciences	1.60	2.25
IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems	1.94	2.12
Parallel Computing	1.36	2.01
Journal of Computational Science	1.74	2.00
Journal of Parallel and Distributed Computing	1.93	1.97
BIT Numerical Mathematics	1.67	1.96