Magnus Jahre

Curriculum Vitae

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Personal information

Name: Magnus Jahre
Date of birth: 3. November 1981
Nationality: Norwegian
Scholar: `https://scholar.google.com/citations?user=D052R0UAAAAJ`
ORCID: `https://orcid.org/0000-0001-9147-5228`

Education

2010 **PhD**, *Computer Architecture*, NTNU, Norway
Title: "Managing Shared Resources in Chip Multiprocessor Memory Systems". Supervisor: Lasse Natvig. Defense date: 25. October 2010.

2007 **Master of Technology**, *Computer Science*, NTNU, Norway

Current and previous positions

2021–present **Professor**, *Department of Computer Science*, NTNU, Norway

2010–2021 **Associate Professor**, *Department of Computer Science*, NTNU, Norway
I held a teaching position ("Førstelektor") until June 2012 and was then promoted to a research and teaching position ("Førsteamanuensis"); both positions are labeled "Associate Professor" in English.

2010–2010 **University Lecturer**, *Department of Computer Science*, NTNU, Norway

2005–2010 **PhD Student (Integrated PhD Program)**, *Dept. of Computer Science*, NTNU, Norway

Fellowships and awards

2025 Our FINN paper received NORA's Publication of the Decade Award 2014 – 2024

2024 "TEA: Time-Proportional Event Analysis" was selected as one of 12 "Top Picks from the Computer Architecture Conferences" based on "novelty and potential for long-term impact".

2024 HiPEAC paper award for "Temporarily Unauthorized Stores: Write First, Ask for Permission Later"

2024 HiPEAC paper award for "AIO: An Abstraction for Performance Analysis Across Diverse Accelerator Architectures"

2023 HiPEAC paper award for "TEA: Time-Proportional Event Analysis"

2023 HiPEAC paper award for "SAC: Sharing-Aware Caching in Multi-Chip GPUs"

2023 HiPEAC paper award for "NUBA: Non-Uniform Bandwidth GPUs"

2023 Best paper award nomination for "Balancing Accuracy and Evaluation Overhead in Simulation Point Selection" at IISWC'23

2023 Best paper award nomination for "TEA: Time-Proportional Event Analysis" at ISCA'23

2023 Best paper award nomination for "PES: An Energy and Throughput Model for Energy Harvesting IoT Systems" at ISPASS'23

2022 HiPEAC paper award for "Delegated Replies: Alleviating Network Clogging in Heterogeneous Architectures"

2021 Best Paper Award Runner-Up for "TIP: Time-Proportional Instruction Profiling" at MICRO'21

2021 HiPEAC paper award for "TIP: Time-Proportional Instruction Profiling"

2021 Accepted as member of the HiPEAC European Network of Excellence

2020 Senior Member of ACM

2020 Three HiPEAC paper awards for "HSM: A Hybrid Slowdown Model for Multitasking GPUs" (ASPLOS'20), "MDM: The GPU Memory Divergence Model" (MICRO'20), and "Selective Replication in Memory-Side GPU Caches" (MICRO'20)

2019 Selected for NTNU's Outstanding Academic Fellows Program

2019 Awarded a "Young Research Talents" project by the Research Council of Norway

2018 HiPEAC technology transfer award for "Non-Intrusive Power Monitoring for Embedded Systems"

2018 HiPEAC paper award for "Get Out of the Valley: Power-Efficient Address Mapping for GPUs", ISCA'18

2018 HiPEAC paper award for "GDP: Using Dataflow Properties to Accurately Estimate Interference-Free Performance at Runtime", HPCA'18

2018 Senior Member of the IEEE

2016 Learning Prize at the Department of Computer and Information Science for TDT4295 Computer Design Project (with Yaman Umuroglu)

2016 Outstanding Paper Award at HPCS 2016

2010 Nominated for the Exxon Mobil award for best PhD thesis at NTNU (with Marius Grannæs)

2010 Nominated for Best Paper at HiPEAC 2010

2009 4th place in the JILP Data Prefetching Championship

Mobility

2023–2024 Visiting researcher at the University of Murcia (hosted by Alberto Ros)

2017–2018 Visiting researcher at Ghent University (hosted by Lieven Eeckhout) and Nordic Semiconductor (hosted by Torstein Heggebø)

2010 Visiting researcher at the University of Tromsø

Institutional responsibilities

2022–2024 **Member of the Department of Computer Science organization project FRIDI**, *Department of Computer and Information Science*, NTNU

2018–2021 **Deputy head of the Computing Research Unit**, *Dept. of Computer and Information Science*, NTNU

2016–2017 **Head of the Computing Research Unit**, *Dept. of Computer and Information Science*, NTNU

2011–2016 **Head of the Computer Architecture and Design (CARD) Research Unit**, *Dept. of Computer and Information Science*, NTNU

2013–2016 **Coordinator of the Energy Efficient Computing Systems (EECS) research initiative**, *Faculty of Information Technology and Electrical Engineering*, NTNU

2011-2012 **Led the Basic Education and Computer Science subprojects in Fremtidens IKT-utdanning (FRIKT)**, *Faculty of Information Technology and Electrical Engineering*, NTNU

Course Teaching

2024–present **TDT4160 Computer Fundamentals**, *Dept. of Computer Science*, NTNU
Bachelor-level course in basic computer architecture (~750 students). Role: Coordinator and lecturer.

2011–2016, 2018–2022 **TDT4255 Computer Design**, *Department of Computer Science*, NTNU
Master-level course in advanced computer architecture (~25 students). Role: Coordinator and lecturer. (Gap in 2017 is due to sabbatical.)

2021–present **DT8123 Advanced Computing**, *Department of Computer Science*, NTNU
PhD-level course on advanced computer systems (~10 students). Role: Lecturer (one lecture).

2011, 2013–2015 **TDT4258 Low-Level Programming**, *Department of Computer Science*, NTNU
Master-level course in programming of embedded systems (~50 students). Role: Coordinator and lecturer (mainly in 2011).

2016–2022, 2024–present **TDT1 Architecture of Computer Systems**, *Department of Computer Science*, NTNU
Final-year research article seminar for master students (~20 students). Role: Co-coordinator.

2010–2012, 2016, 2018 **TDT4195 Computer Design Project**, *Department of Computer Science*, NTNU
Master-level project course, the students build an embedded system (~20 students). Role: Coordinator.

2016, 2019 **DT8105 Computer Architecture 2**, *Department of Computer Science*, NTNU
PhD-level course in advanced computer architecture (1 or 2 students). Role: Coordinator.

2010, 2012 **TDT4260 Computer Architecture**, *Department of Computer Science*, NTNU
Master-level course in advanced computer architecture (~30 students). Role: Coordinator and lecturer.

2010 **TDT4160 Computers and Digital Design**, *Dept. of Computer Science*, NTNU
Bachelor-level course in basic computer architecture (~300 students). Role: Coordinator and lecturer.

Supervision and Mentoring

Mentored post doctoral fellows

2025–present Joseph Rogers
2016–2018 Ananya Muddukrishna
2015–2017 Mohammed Sourouri
2013–2014 Nikita Nikitin
2012–2014 Juan Manuel Cebrian
2013–2019 Asbjørn Djupdal

Supervised PhD students

2023–present Maren Wessel-Berg
2022–present Silvio Campelo de Santana
2022–present Lukas Liedtke
2019–2025 **Joseph Rogers**, *Early-Stage Exploration of Heterogeneous System-on-Chip Architectures*
2020–2024 **Fatemeh Ghasemi**, *Modeling Energy and Performance in Energy Harvesting IoT Systems*
2018–2024 **Björn Gottschall**, *Time-Proportional Performance Analysis for Out-of-Order Processors*
2012–2019 **Nico Reissman**, *Principles, Techniques, and Tools for Explicit and Automatic Parallelization*
2012–2018 **Yaman Umuroglu**, *Accelerating Sparse Linear Algebra and Deep Neural Networks on Reconfigurable Platforms*

Co-supervised PhD students

2024–present Andreu Girones
2022–present Roman Kaspar Brunner
2020–present Anders Gaustad
2020–present Amund Bergsland Kvalsvik
2020–present David Metz
2019–2024 **Truls Asheim**, *Analyzing and Optimizing Serverless Function Execution*
2012–2018 **Yahya Yassin**, *Techniques for Scenario Prediction and Switching in System Scenario Based Designs*
2012–2017 **Odd Rune Strømmen Lykkebø**, *Computing in Unstructured Matter*

Supervised master students

2025 **38. Jonatan Solheim**, *Evaluating Address Mapping Schemes for Ray Tracing Workloads on Mobile GPUs*
2025 **37. Erlend Paulsen Skaaden**, *Evaluating GPGPU Architectures with Chipyard and FireSim*
2025 **35/36. Kornel Harmati and Odd Magne Gynnild**, *Towards a Mechanism for Creating Cycle Stacks on Ultra-Low Power ARMv8-M Processors*
2025 **33/34. Patryk Kuklinski and Markus Bøyum Johansen**, *Towards a Time-Proportional Performance Profiler for the XiangShan Out-of-Order Core*
2023 **32. Charbel Badr**, *Towards Time-Proportional Profiling of Low-Power System-on-Chips*
2023 **31. Lars Murud Aurud**, *Improving Fetch and Issue Bandwidth in the Vortex GPU*
Nominated for the Best FPGA Master Thesis Award at FPGA forum.
2023 **30. Erling Feet Nesset**, *Improving the First-Level Cache Bandwidth in the Berkeley Out-of-Order Machine*
2022 **29. Markus Rekdal**, *Investigating the Performance Scalability of the Vortex GPU*
2022 **28. Philip Gausaker**, *A Coarse-Grain Reconfigurable Accelerator for Rocket*
2022 **27. Ådne Karstad**, *Evaluating the Energy Consumption of Asset Tracking Applications*
2021 **26. Martin Rebne Farstad**, *Understanding the Key Performance Trends of Optimized Iterative Stencil Loop Kernels on High-End GPUs*

2021 **25. Mateo Vázquez Maceiras**, *Accelerating LBM on a Tightly-Coupled Field Programmable Gate Array*
Nominated for the Best FPGA Master Thesis Award at FPGA forum.

2020 **24. Lasse Agentoft Eggen**, *Towards Efficiently Utilizing Coarse-Grained Reconfigurable Accelerators*

2020 **23. Eirik Vale Aase**, *Minimizing the Energy Consumption of Soft Real-Time Applications on a Multi-Core Ultra-Low-Power Device*

2020 **22. Jørgen Boganes**, *Accelerating Object Detection for Agricultural Robotics*

2020 **21. Peter Salvesen**, *Predicting Interference-Free Performance with Linear Model Trees*
Nominated for the Norwegian Computing Center's prize for best master thesis within computer science and mathematics.

2020 **20. Eirik Smithsen**, *Fast Call Graph Profiling*

2017 **19. Thomas Alexander aan de Wiel**, *Evaluating Shared Last Level Cache Partitioning Algorithms*

2017 **18. Christian De Frene**, *Vectorized Benchmarks for the Berkeley Dwarfs*

2017 **17. Peder Voldnes Langdal**, *Extending OMPT to Support Grain Graph Visualization*

2017 **16. Anders Sildnes**, *Pre-processing of Graphs*

2016 **15. Audun Sutterud**, *Designing a Virtual Memory System for the SHMAC Research Infrastructure*

2015 **14. Runar Bergheim Olsen**, *Evaluation of Cache Management Algorithms for Shared Last Level Caches*

2014 **12/13. Anders Akre and Sebastian Tvetmarken Bøe**, *Design and Implementation of a High-Performance Processor Core for the Heterogeneous SHMAC Multi-Core Prototype*

2014 **11. Magnus Walstad**, *Task Based Parallel Programming on the SHMAC Multi-Core Prototype*

2014 **10. Håkon Opsvik Wikene**, *Implementing a bare-metal threading library for SHMAC*

2013 **9. Alexandru Fiodorov**, *Improving Energy Efficiency with Special-Purpose Accelerators*

2013 **8. Christian Grøvdal**, *A Comparative Analysis of Shared Cache Management Techniques for Chip Multiprocessor*

2013 **7. Yaman Umuroglu**, *A Cycle-accurate Simulation Infrastructure for the Heterogeneous SHMAC Multi-Core Prototype*

2012 **6. Stian Fredrikstad**, *Saving Energy in Periodic Embedded Systems with Memory System Techniques*

2012 **4/5. Ole Magnus Ruud and Vegar Kåsli**, *Towards Energy-Efficient Hardware Acceleration of Embedded GPU Drivers*

2012 **2/3. Leif Tore Rusten and Gunnar Inge Sortland**, *Implementing a Heterogeneous Multi-Core Prototype in an FPGA*
Received Best FPGA Master Thesis Award at FPGA forum.

2011 **1. Anders Nore**, *Multi-Processor System-on-Chip Architectures for Wireless Applications*

Commissions of trust

Organization of Conferences and Workshops

2025 Workshops and Tutorials Co-Chair of the International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), Rotterdam, Netherlands

2024 Main organizer of the Workshop on Sustainable and Performant Computing, Trondheim, Norway

2024 Main organizer of the Workshop on Energy Efficiency for the Internet of Things and Beyond, Trondheim, Norway

2023 Publication Chair of the IEEE International Symposium on Workload Characterization (IISWC), Ghent, Belgium

2016 General Chair of the Ninth Nordic Workshop on Multi-core Computing (MCC), Trondheim, Norway

Program Committees (PCs) of top-tier computer architecture conferences

2025 International Symposium on Computer Architecture (ISCA)

2024 International Symposium on Computer Architecture (ISCA)

2023 International Symposium on Microarchitecture (MICRO)

2022 International Symposium on High-Performance Computer Architecture (HPCA)

2020 International Symposium on Computer Architecture (ISCA)

External Review Committees (ERCs) of top-tier computer architecture conferences

2026 International Symposium on High-Performance Computer Architecture (HPCA)

2025 International Symposium on Microarchitecture (MICRO)
2023 International Symposium on High-Performance Computer Architecture (HPCA)
2022 International Symposium on Microarchitecture (MICRO)
2022 International Symposium on Computer Architecture (ISCA)
2021 International Symposium on Microarchitecture (MICRO)
2021 International Symposium on Computer Architecture (ISCA)
2020 International Symposium on Microarchitecture (MICRO)

Journal editorships

2022–present Associate editor, IEEE Micro

Journal reviews

Selection Committee for 2023 IEEE Micro's Top Picks from the Computer Architecture conferences
IEEE Transactions on Computers (TC)
ACM Transactions on Architecture and Code Optimization (TACO)
ACM Transactions on Embedded Computing Systems (TECS)
IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)
IEEE Transactions on Parallel and Distributed Systems (TPDS)
Journal of Supercomputing
Journal of Parallel and Distributed Computing (JPDC)
Microprocessors and Microsystems (MICPRO)
Journal of Signal Processing System

Program committee member at other conferences and workshops

2026 Design, Automation and Test in Europe Conference (DATE)
2024 International European Conference on Parallel and Distributed Computing (EURO-PAR)
2021 IEEE Nordic Circuits and Systems Conference (NorCAS)
2020 Programmability and Architectures for Heterogeneous Multicores (MULTIPROG)
2019 12th Nordic Workshop on Multi-core Computing (MCC)
2019 ACM SIGPLAN/SIGBED Conference on Languages, Compilers, Tools and Theory for Embedded Systems (LCTES)
2018 Eleventh Nordic Workshop on Multi-core Computing (MCC)
2018 ACM SIGPLAN/SIGBED Conference on Languages, Compilers, Tools and Theory for Embedded Systems (LCTES)
2018 Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP)
2017 Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP)
2016 Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP)
2015 Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP)

Evaluation of research proposals

2017 Reviewer for Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO)

Evaluation committees

2015 Discussion lead for Licentiate thesis, Piyumal Ranawaka, Chalmers, Sweden
2025 Referee for the docentship application of Chang Hyun Park, University of Uppsala
2023 PhD committee member, Shiqing Zhang, Ghent University, Belgium
2022 PhD committee member, Mehrzad Nejat, Chalmers, Sweden
2020 PhD committee member, Lu Wang, Ghent University, Belgium
2019 PhD committee member, Xia Zhao, Ghent University, Belgium
2019 Second PhD opponent, Vi Tran, University of Tromsø, Norway
2018 PhD committee member, Sander De Pestel, Ghent University, Belgium
2018 Discussion lead for Licentiate thesis, Alexandra Angerd, Chalmers, Sweden
2014 External PhD thesis reviewer, Syed Jafri, University of Turku, Finland

Invited talks

2025 "Kunstig intelligens på kanten", Catch IDI Keynote, NTNU, Norway

2025 "Computer Architecture Lab Research", Bosch Corporate Research Workshop (Online), Norway/Germany

2023 "Time-Proportional Performance Analysis", University of Murcia, Spain

2023 "Time-Proportional Performance Analysis", Intel ArchFest, (Online), USA

2022 "Sustainable Computer Systems", Workshop on How to Include Sustainability and Digitalization in Teaching, University of Agder, Norway

2022 "Time-proportional Instruction Profiling", AMD, (Online), USA

2021 "TIP: Time-proportional Instruction Profiling", SiFive Engineering Forum, (Online), USA (with Björn Gottschall and Lieven Eeckhout)

2021 "TIP: Time-proportional Instruction Profiling", Intel Performance Brown Bag, (Online), USA (with Björn Gottschall and Lieven Eeckhout)

2021 "Architecting (Quantum) Computers", Gemini Center on Quantum Computing, (Online), Norway

2018 "Get Out of the Valley: Power-Efficient Address Mapping for GPUs", Chalmers University of Technology, Gothenburg, Sweden

2017 "Using FPGAs to Accelerate Neural Network Inference", RC4DL: Reconfigurable Computing for Deep Learning, Workshop at the 27th International Conference on Field-Programmable Logic and Applications (FPL), Ghent, Belgium

2017 "Multi-core Memory System Resource Management and Accelerators", PerformanceLab, Ghent University, Belgium

2016 "Climbing the Complexity Wall with Efficient Tools and Abstractions", University of Tromsø, Norway

2011 "Multi-core Memory System Resource Management", Multi-core Day, Swedish Institute of Computer Science (SICS), Stockholm, Sweden

2010 "Multi-core Memory Systems: Research Results, Methods and Future Plans", Arm ERSC, Cambridge, UK

Research Projects

2025–2028 **Time-Proportional Speedup Stacks (TPSS)**
Role: Co-PI. The Research Foundation — Flanders (FWO), Senior research project 2024. Overall budget 742 kEUR, contribution to NTNU 54 kEUR.

2025–2027 **Defending Norway with Computationally Efficient AI (DECAI)**
Role: Principal Investigator. Research Council of Norway, IKTPLUSS. Overall budget 4.7 MNOK, contribution to NTNU 4.5 MNOK.

2024–2025 **DrillComputer2 — Drill faster, further and straighter**
Role: Project Manager, NTNU. Research Council of Norway, Qualification — Research Commercialisation from Publicly Funded Research 2023. Overall budget 3 MNOK, contribution to NTNU 720 kNOK.

2024, 2025 **Scalable Hardware-Aware Machine Learning Inference for the Edge**
Role: Co-PI. Gifts from Advanced Micro Devices (AMD), 100 kEUR.

2023–2026 **Profitable city-friendly micromobility (PROCITY)**
Role: Scientific advisor. Co-funded by the Research Council of Norway, Urban Sharing AS, UIP Drift AS and Ryde Technology AS. Overall budget 19 MNOK, contribution to NTNU 2.5 MNOK.

2021–2026 **Doctoral Programme for Integrated Research Activities to Unlock a Potential of Top-Level Researchers in Digital Transformation for Sustainability (PERSEUS)**
Role: Advisor (Lukas Liedtke). EU H2020, MSCA-COFUND-2020. Overall budget 6.5 MEUR, NTNU grant 3.3 MEUR.

2021–2023 **DrillComputer – Monitoring real-time drilling operations with computational simulations**
Role: Scientific advisor. 5 MNOK from the Norwegian Research Council, NTNU grant 953 kNOK.

2021–2024 **Supporting FSU and MTU Student Research with NTNU Faculty on Automatic Improvement of Application Performance**
Role: Co-PI. National Science Foundation (NSF), International Research Experiences for Students (IRES), NSF grant 150 kUSD

2020–2023 **Boosting Widening Digital Innovation Hubs (BOWI)**
Role: Scientific advisor. EU H2020, ICT-01-2019, overall budget 8.0 MEUR, NTNU grant 285 kEUR.

2020–2022 **Future of Micromobility (FOMO)**
Role: Scientific advisor. Co-funded by Urban Sharing AS and the Research Council of Norway. Overall budget 10 MNOK, Contribution to NTNU 3 MNOK.

2020–2020 **Drill String Dynamics**
Role: Scientific advisor. 1 MNOK from NTNU Discovery

2019–2024 **Balancing Compute and Memory Performance in Reconfigurable Accelerators with Analytical Modeling (BAMPAM)**
Role: Principal Investigator. 7.7 MNOK from the Norwegian Research Council, 1.1 MNOK own funding from NTNU.

2019–2019 **Non-Intrusive Power Monitor for Low-Energy Computing Systems (NIPOLECS)**
Role: Principal Investigator. 26 kEUR from TETRAMAX (total budget 44 kEUR).

2017–2018 **Reducing Power Consumption in Microprocessors (RPCM)**
Role: Co-PI. 500 kNOK from the Regional Research Fund for Mid-Norway.

2017–2020 **Energy efficient high Performance computing research InfrastruCture (EPIC)**
Role: Principal Investigator. 3 MNOK from NTNU.

2016–2019 **Towards Ubiquitous Low-power Image Processing Platforms (TULIPP)**
Role: WP Leader. EU H2020, ICT4.b-2015, budget 4.7 MEUR, NTNU grant 696 kEUR.

2015–2018 **Run-time Exploitation of Application Dynamism for Energy-efficient Exascale computing (READEX)**
Role: Researcher. EU H2020, FETHPC-1-2014, budget 3.5 MEUR, NTNU grant 700 kEUR.

Complete publication list

International peer-reviewed journal publications

21. Hossein SeyyedAghaei, Mahmood Naderan-Tahan, **Magnus Jahre**, and Lieven Eeckhout. "Memory-centric MCM-GPU architecture". In: *IEEE Computer Architecture Letters* (2025)
20. Steffen Bakker, Mohamed Ben Ahmed, Asbjørn Djupdal, Lasse Natvig, Henrik Andersson, **Magnus Jahre**, and Kjetil Fagerholt. "FOMOsim: An open-source simulator for rigorous analysis of micromobility planning problems". In: *Expert Systems with Applications* 264 (2024)
19. Björn Gottschall, Lieven Eeckhout, and **Magnus Jahre**. "Per-instruction cycle stacks through time-proportional event analysis". In: *IEEE Micro* (2024): *Top Picks from the Computer Architecture Conferences*
18. Shiqing Zhang, Mahmood Naderan-Tahan, **Magnus Jahre**, and Lieven Eeckhout. "Characterizing multi-chip GPU data sharing". In: *ACM Transactions on Code Optimization and Architecture (TACO)* (2023)
17. Shiqing Zhang, Mahmood Naderan-Tahan, **Magnus Jahre**, and Lieven Eeckhout. "Balancing performance against cost and sustainability in multi-chip-module GPUs". In: *IEEE Computer Architecture Letters* (2023)
16. Mostafa Koraei, Juan M. Cebrian, and **Magnus Jahre**. "Near-optimal multi-accelerator architectures for predictive maintenance at the edge". In: *Future Generation Computer Systems* 140 (2023), pp. 331–343
15. Peter Salvesen and **Magnus Jahre**. "LMT: Accurate and resource-scalable slowdown prediction". In: *IEEE Computer Architecture Letters* 21.2 (2022), pp. 97–100
14. Fatemeh Ghasemi and **Magnus Jahre**. "Modeling periodic energy-harvesting computing systems". In: *IEEE Computer Architecture Letters* 20.2 (2021), pp. 142–145
13. Yahya H. Yassin, **Magnus Jahre**, Per Gunnar Kjeldsberg, Snorre Aunet, and Francky Catthoor. "Fast and accurate edge computing energy modeling and DVFS implementation in GEM5 using system call emulation mode". In: *Journal of Signal Processing Systems* 93.1 (2021), pp. 33–48
12. Juan M. Cebrian, Lasse Natvig, and **Magnus Jahre**. "Scalability analysis of AVX-512 extensions". In: *The Journal of Supercomputing* 76.3 (2020), pp. 2082–2097
11. Mostafa Koraei, Omid Fatemi, and **Magnus Jahre**. "DCMI: A scalable strategy for accelerating iterative stencil loops on FPGAs". In: *ACM Transactions on Architecture and Code Optimization* 16.4 (2019), pp. 1–24
10. Lu Wang, **Magnus Jahre**, Almutaz Adileh, Zhiying Wang, and Lieven Eeckhout. "Modeling emerging memory-divergent GPU applications". In: *IEEE Computer Architecture Letters* 18.2 (2019), pp. 95–98
9. Joseph Schuchart, Michael Gerndt, Per Gunnar Kjeldsberg, Michael Lysaght, David Horák, Lubomír Říha, Andreas Gocht, Mohammed Sourouri, Madhura Kumaraswamy, Anamika Chowdhury, **Magnus Jahre**, Kai Diethelm, Othman Bouizi, Umbreen Sabir Mian, Jakub Kružík, Radim Sojka, Martin Beseda, Venkatesh Kannan, Zakaria Bendifallah, Daniel Hackenberg, and Wolfgang E. Nagel. "The READEX formalism for automatic tuning for energy efficiency". In: *Computing* (2017), pp. 1–19

8. Yaman Umuroglu and **Magnus Jahre**. "Random access schemes for efficient FPGA SpMV acceleration". In: *Microprocessors and Microsystems* 47 (2016), pp. 321–332
7. Alexandru C. Iordan, **Magnus Jahre**, and Lasse Natvig. "Tuning the victim selection policy of Intel TBB". in: *Journal of Systems Architecture* 61.10 (2015), pp. 584–591
6. Juan M. Cebrian, **Magnus Jahre**, and Lasse Natvig. "ParVec: Vectorizing the PARSEC benchmark suite". In: *Computing* 97.11 (2015), pp. 1077–1100
5. Helge Bahmann, Nico Reissmann, **Magnus Jahre**, and Jan Christian Meyer. "Perfect reconstructability of control flow from demand dependence graphs". In: *ACM Transactions on Architecture and Code Optimization* 11.4 (2015), pp. 1–25
4. Marius Grannaes, **Magnus Jahre**, and Lasse Natvig. "Storage efficient hardware prefetching using delta-correlating prediction tables". en. In: *Journal of Instruction-Level Parallelism* 13 (2011), pp. 1–16
3. M. Grannaes, **M. Jahre**, and L. Natvig. "Multi-level hardware prefetching using low complexity delta correlating prediction tables with partial matching". In: *Transactions on High-Performance Embedded Architectures and Compilers* (2011)
2. **Magnus Jahre** and Lasse Natvig. "A high performance adaptive miss handling architecture for chip multiprocessors". In: *Transactions on High-Performance Embedded Architectures and Compilers IV* 6760 (2011)
1. G. Sindre, L. Natvig, and **M. Jahre**. "Experimental validation of the learning effect for a pedagogical game on computer fundamentals". In: *IEEE Transactions on Education* 52.1 (2009), pp. 10–18

International peer-reviewed conference and workshop publications

49. Joseph Rogers, Lieven Eeckhout, Taha Soliman, and **Magnus Jahre**. "Neoscope: How resilient is my SoC to workload churn?" In: *Proceedings of the International Symposium on Computer Architecture (ISCA)*. 2025
48. Joseph Rogers, Lieven Eeckhout, and **Magnus Jahre**. "HILP: Accounting for workload-level parallelism in system-on-chip design space exploration". In: *Proceedings of the International Symposium on High Performance Computer Architecture (HPCA)*. 2025
47. Juan M. Cebrian, **Magnus Jahre**, and Alberto Ros. "Temporarily unauthorized stores: Write first, ask for permission later". In: *Proceedings of the International Symposium on Microarchitecture (MICRO)*. 2024
46. Joseph Rogers, Taha Soliman, and **Magnus Jahre**. "AIO: An abstraction for performance analysis across diverse accelerator architectures". In: *Proceedings of the International Symposium on Computer Architecture (ISCA)*. 2024
45. Truls Asheim, **Magnus Jahre**, and Rakesh Kumar. "CoFaaS: Automatic transformation-based consolidation of serverless functions". In: *Proceedings of the Workshop on SErverless Systems, Applications and MEthodologies (SESAME)*. 2024
44. Fatemeh Ghasemi, Lukas Liedtke, and **Magnus Jahre**. "ECM: Improving IoT throughput with energy-aware connection management". In: *Proceedings of the Design, Automation and Test in Europe Conference (DATE)*. 2024
43. Fatemeh Ghasemi, Lukas Liedtke, and **Magnus Jahre**. "ESS: Repeatable evaluation of energy harvesting subsystems for industry-grade IoT platforms". In: *Proceedings of the IEEE International Symposium on Workload Characterization (IISWC)*. 2023
42. Björn Gottschall, Silvio Campelo de Santana, and **Magnus Jahre**. "Balancing accuracy and evaluation overhead in simulation point selection". In: *Proceedings of the IEEE International Symposium on Workload Characterization (IISWC)*. 2023 **(Nominated for best paper award.)**
41. Björn Gottschall, Lieven Eeckhout, and **Magnus Jahre**. "TEA: Time-proportional event analysis". In: *Proceedings of the International Symposium on Computer Architecture (ISCA)*. 2023 **(Nominated for best paper award.)**
40. Shiqing Zhang, Mahmood Naderan-Tahan, **Magnus Jahre**, and Lieven Eeckhout. "SAC: Sharing-aware caching in multi-chip GPUs". In: *Proceedings of the International Symposium on Computer Architecture (ISCA)*. 2023
39. Fatemeh Ghasemi, Lukas Liedtke, and **Magnus Jahre**. "PES: An energy and throughput model for energy harvesting IoT systems". In: *Proceedings of the International Symposium on Performance Analysis of Systems and Software (ISPASS)*. 2023 **(Nominated for best paper award.)**
38. Xia Zhao, **Magnus Jahre**, Yuhua Tang, Guangda Zhang, and Lieven Eeckhout. "NUBA: Non-uniform bandwidth GPUs". In: *Proceedings of the International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*. 2023

37. Xia Zhao, Lieven Eeckhout, and **Magnus Jahre**. "Delegated replies: Alleviating network clogging in heterogeneous architectures". In: *Proceedings of the International Symposium on High Performance Computer Architecture (HPCA)*. 2022, pp. 1014–1028

36. Björn Gottschall, Lieven Eeckhout, and **Magnus Jahre**. "TIP: Time-proportional instruction profiling". In: *Proceedings of the International Symposium on Microarchitecture (MICRO)*. 2021, pp. 15–27 **(Best Paper Award Runner-Up.)**

35. Lu Wang, **Magnus Jahre**, Almutaz Adileh, and Lieven Eeckhout. "MDM: The GPU memory divergence model". In: *Proceedings of the International Symposium on Microarchitecture (MICRO)*. 2020, pp. 1009–1021

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2024 "Hva gjør NVIDIA?", Intervju, NRK Nyhetsmorgen

2024 "Kunstig intelligens på kanten", Talk, Arendalsuka

2024 "Bærekraftig kunstig intelligens?", Talk, Tekna Trondheim seniorforum

2023 "Ny, supersmart maskinvare kan gi kraftige kutt i strømforbruket.", Interview, Gemini.no

2020 "Hvor klimafarlig er internett? Datasentre står for 1 prosent av verdens energibruk, ifølge ny studie.", Interview, Forskning.no

2019 Interview, Frokostradioen, NRK P1+

2017 "Dette er det første du må gjøre i dag: Oppdater datamaskinen", Interview, VG 15/5-17 and vg.no

2017 "Ein æra er omme", Interview, nrk.no

2016 "The Norwegian Microelectronics Industry", NHO visit to NTNU

2016 "Blir PC-en og mobilen tregere med årene?", Interview, Aftenposten

2016 "Productivity vs. Efficiency: Harnessing the Compute Power of Current and Future Parallel Computer Architectures", Workshop with Norwegian industry in relation to the KID industry network.

2015 "Fremtidens superdatamaskiner må være energieffektive", NTNU Tech Zone

2015 Green ICT presentation at Heimdal upper secondary school in relation to the EU-project "Use IT Smartly".

2014 Interview, Nyhetslunsj, NRK P2

2014 "Kaster bort strøm for milliarder", Dagens Næringsliv, (front page)

2014 "Energy Efficient Computing Systems", Centre for the Development of Industrial Technology (CDTI) visit at NTNU

2014 "Energy Efficient Computing Systems", NxtMedia board visit at NTNU

2013 "Hvordan datateknologien redder verden", IT-camp for jenter

2013 "Teknisk sett: 5 spørsmål om grønn IT", Teknisk Ukeblad

2013 "Effektiv Elektronikk", Dagens Næringsliv

2013 "Forskningsfyrtårnet NTNU Energy Efficient Computing Systems (EECS)", Elektronikk: Tidsskrift for IT og Telekom

2012 "Hvordan datateknikken redder verden", IT-camp for jenter

2011 "Computational Computer Architecture", Meta

2010 "Computational Computer Architecture Research at NTNU", ERCIM News