

MATTHIJS JANSEN

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RESEARCH AREAS

My research focuses on the compute continuum, or how users on laptops and smartphones interact with cloud datacenters. My active interest concerns analyzing and optimizing the resource management systems that make this compute continuum possible.

EDUCATION

- Doctoral Candidate**, Vrije Universiteit (*Expected*) 2020 - 2025
Supervised by dr. Animesh Trivedi and Prof. dr. ir. Alexandru Iosup
- Master of Computer Science**, University of Amsterdam and Vrije Universiteit Amsterdam 2018 - 2020
Thesis: A Performance-Based Recommender System for Distributed DNN Training
- Bachelor of Computer Science**, University of Amsterdam 2015 - 2018
Thesis: Thermal Models for the Exploration of Embedded System Architectures

PUBLICATIONS

- The SPEC-RG Reference Architecture for the Compute Continuum**
Matthijs Jansen, Auday Al-Dulaimy, Alessandro V. Papadopoulos, Animesh Trivedi, Alexandru Iosup
The 23rd International Symposium on Cluster, Cloud and Internet Computing (CCGRID) 2023
- Continuum: Automate Infrastructure Deployment and Benchmarking in the Compute Continuum**
Matthijs Jansen, Linus Wagner, Animesh Trivedi, Alexandru Iosup
The First FastContinuum Workshop (FastContinuum) 2023
- Can My WiFi Handle the Metaverse? A Performance Evaluation Of Meta's Flagship Virtual Reality Hardware**
Matthijs Jansen*, Jesse Donkervliet*, Animesh Trivedi, Alexandru Iosup
The Sixth Workshop on Hot Topics in Cloud Computing Performance (HotCloudPerf) 2023
- GradeML: Towards Holistic Performance Analysis for Machine Learning Workflows**
Tim Hegeman, Matthijs Jansen, Alexandru Iosup, Animesh Trivedi
The Fifth Workshop on Hot Topics in Cloud Computing Performance (HotCloudPerf) 2021
- DDLBench: Towards a Scalable Benchmarking Infrastructure for Distributed Deep Learning**
Matthijs Jansen, Valeriu Codreanu, Ana Lucia Varbanescu
The Fourth Workshop on Deep Learning on Supercomputers (DLS@SC) 2020

WORK EXPERIENCE

- Machine Learning Intern at the Dutch National Supercomputing Center SURF, Amsterdam Jan 2020 - Jun 2020
- I analyzed distributed machine learning algorithms and systems (TensorFlow, PyTorch, Horovod, GPipe, PipeDream).
 - I designed, implemented, and evaluated a recommender system for distributed machine learning, advising machine learning algorithms based on dataset and machine learning model properties.

OPEN SOURCE PROJECTS

- Continuum**: Automate cloud-edge infrastructure deployments and benchmarks with Continuum 2021 - 2023
- Columbo**: Explore and optimize Kubernetes configurations for fast application deployment 2023
- MetaBench**: Benchmark the performance and energy usage of Meta's flagship virtual reality hardware 2023
- DDLBench**: A recommender system for distributed machine learning algorithms 2020

SERVICE

- Reviewer for the Amsterdam Data Science Thesis Awards 2022 - 2023
- Reviewer for the Journal of Signal Processing Systems 2023
- Reviewer for the International Symposium on High-Performance Parallel and Distributed Computing (HPDC) 2023
- Reviewer for the International Symposium on Cluster, Cloud and Internet Computing (CCGRID) 2023
- Reviewer for the Transactions on Parallel and Distributed Computing (TPDS) 2022
- Reviewer for the Web Conference (TheWebConf) 2022
- Artifact Evaluation for the European Systems Conference (EuroSys) 2021

PRESENTATIONS

The SPEC-RG Reference Architecture for the Compute Continuum The 23rd International Symposium on Cluster, Cloud and Internet Computing (CCGRID)	2023
Continuum: Automate Infrastructure Deployment and Benchmarking in the Compute Continuum The First FastContinuum Workshop (FastContinuum)	2023
Continuum: Automate Infrastructure Deployment and Benchmarking in the Compute Continuum Dutch Computer Systems Conference (CompSys)	2023
Continuum: Automate Infrastructure Deployment and Benchmarking in the Compute Continuum NWO ICT.OPEN	2023
The SPEC-RG Reference Architecture for the Compute Continuum ESI Cloud Continuum workshop	2023
Managing Compute Resources between Cloud, Edge, and Endpoint University of Amsterdam	2023
The SPEC-RG Reference Architecture for The Edge Continuum Dutch Computer Systems Conference (CompSys)	2022
The SPEC-RG Reference Architecture for the Edge Continuum NWO ICT.OPEN	2022
DDLbench: Towards a Scalable Benchmarking Infrastructure for Distributed Deep Learning Dutch Computer Systems Conference (CompSys)	2021
A Scalable Benchmarking Infrastructure for Distributed Deep Learning NWO ICT.OPEN	2021
DDLbench: Towards a Scalable Benchmarking Infrastructure for Distributed Deep Learning The Fourth Workshop on Deep Learning on Supercomputers (DLS@SC)	2020

TEACHING

Teacher for Advanced Network Programming (BSc) at Vrije Universiteit Amsterdam	2023
Teacher for Computer Networks (BSc) at Vrije Universiteit Amsterdam	2023
Teaching Assistant for Distributed Systems (MSc) at Vrije Universiteit Amsterdam	2021 - 2023
Teaching Assistant for Storage Systems (MSc) at Vrije Universiteit Amsterdam	2021 - 2023
Teaching Assistant for Advanced Topics in Distributed Systems (MSc) at Vrije Universiteit Amsterdam	2020 - 2023
Teaching Assistant for Compiler Constructions (BSc) at University of Amsterdam	2019 - 2020
Teaching Assistant for Image Processing and Computer Vision (BSc) at University of Amsterdam	2019
Teaching Assistant for Modern Databases (BSc) at University of Amsterdam	2019
Teaching Assistant for Concurrent and Parallel Programming (BSc) at University of Amsterdam	2019
Teaching Assistant for Information Retrieval (BSc) at Vrije Universiteit Amsterdam	2018

SUPERVISION

MSc Literature Survey of Edgardo Reinoso Campos at Vrije Universiteit Amsterdam	2023
MSc Literature Survey of Antonios Sklavos at Vrije Universiteit Amsterdam	2023
MSc Literature Survey of Tim van Kemenade at Vrije Universiteit Amsterdam	2023
BSc Thesis of Daniel Berzak at Vrije Universiteit Amsterdam	2023
MSc Individual Systems Practical of Felix Goosens at Vrije Universiteit Amsterdam	2022

SKILLS

Programming Languages	Fluent in Python and Bash, familiar with Go and C
Platforms	GNU/Linux, Kubernetes, KubeEdge, OpenWhisk, Spark
DevOps	QEMU, KVM, Docker, Ansible, Git, Terraform
Machine Learning	TensorFlow, PyTorch, Horovod, GPIPE, PipeDream
Data Analysis	NumPy, SciPy, Pandas, Matplotlib