Michael Jungmair

Contact Information

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Education

11/2021 - Today	PhD Student at the **Chair for Database Systems at TU Munich** Research: Revolutionizing Data Processing with Compiler Technology • Leading the open-source LingoDB project • Designing an open framework for query optimization and compilation • Effective optimization and execution of user-defined workloads. Teaching: • Organizing the lecture "Fundamentals of Databases" with ~ 2000 students • Managing 20-30 tutors
10/2019 - 10/2021	Master of Science Informatics TU Munich, Germany Thesis: "Bridging the Gap Between Relational Algebra and Compiler IRs" Grade: 1.0 (best possible grade: 1.0)
10/2016 - 09/2019	Bachelor of Science Informatics TU Munich, Germany Thesis: "Accelerating Data Structures with Rewired Memory" Grade: 1.4 (best possible grade: 1.0))
09/2008 - 06/2016	Higher Education Entrance Qualification (A-levels) Grade: 1.9 (best possible grade: 1.0)

Work Experience

10/2017 - 02/2021	Teaching Assistent at TU Munich *Tutorials for "Fundamentals of Databases", Supervising students working with FPGAs*
10/2019 - 02/2021	Working Student at Leitwelt GmbH *Working on customer projects in PKI, development of prototypes using AWS' EC2, ECS, and CloudHSM*
04/2018 - 09/2019	Working Student at itestra GmbH *Enterpise Web Application Development using JavaScript, TypeScript and Java EE*

Publications

10/2024	**HiPy: Extracting High-Level Semantics from Python Code for Data Processing** Michael Jungmair, Alexis Engelke, Jana Giceva OOPSLA '24: Pasadena, 2024
09/2023	**Declarative Sub-Operators for Universal Data Processing** Michael Jungmair, Jana Giceva

VLDB '23: Vancouver, 2023

09/2022 **Designing an Open Framework for Query Optimization and Compilation**
Michael Jungmair, André Kohn, Jana Giceva
VLDB '22: Sydney, 2022

04/2020 **START - Self-Tuning Adaptive Radix Tree**
Philipp Fent*, Michael Jungmair*, Andreas Kipf, Thomas Neumann
ICDE Workshop: SMDB, 2020

Scholarships, Awards, and Participations

03/2025	**Software Campus Fellow**
	Micro-Grant for funding a micro-project up to 115,000€ for up to two years
11/2024	Recipient of a **Google PhD Fellowship in Software Systems**
	Up to two years of funding my position (70,000$/year)
11/2020 - 10/2022	best.in.tum, recogniced to be under the best 2% of students
09/2017	Summer School "Modern Algorithms: Randomized, Online, Approximative"
10/2016 - 10/2021	Scholarship of the **German Academic Scholarship Foundation**
09/2016	Winner of the **German National Computer Science Competition**
10/2014-04/2015	Early Studies in Computer Science at TUM

Invited Talks

10/2021	Microsoft Research
10/2022	MLIR Compiler Group - Google Brain
07/2023	The Dutch Seminar on Data Systems Design
10/2023	Cornell Database Seminar
12/2023	TUMuchData - the munich database club.
01/2024	Intel Labs
03/2024	Hyper Team at Salesforce
04/2024	Athena Research Center
09/2024	TU Berlin - Database Systems Group
10/2024	ETH - Systems Group
10/2024	UCLA - PL/DB Lab
10/2024	UC Irvine - Information Systems Group
11/2024	Microsoft Research
11/2024	Google - Systems Research Group
11/2024	TUMuchData - the munich database club.

Supervised Student Topics

04/2023-09/2023	B.sc. Thesis	Transforming Data Frame Operations from Python to MLIR
11/2022-05/2023	M.sc. Thesis	Sub-Operator Placement on GPUs for accelerating analytical queries
11/2023-03/2023	Research Assistant	C Backend, Index-Nested-Loop Join, Query Plan Visualization
03/2023-10/2023	M.sc. Thesis	Converting User-defined Functions to an Intermediate Representation for Cross-Domain Optimizations
01/2024-05/2024	B.sc. Thesis	Implementation of the TPCx-AI benchmark in relational database systems with SQL.
06/2024-12/2024	M.sc. Thesis	Parallel Query Processing on GPUs using Sub-operators