David Gichev

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EDUCATION

Master of Science (Informatics) **04/2023 -**

Technical University of Munich

- Topics: Database systems, cloud systems, hardware-conscious data processing

Bachelor of Engineering (Computer Science) **10/2019 - 03/2023**

Ss. Cyril and Methodius University (FSCE) - Skopje, North Macedonia

- Thesis: Distributed real-time chat platform; GPA: 9.4/10 (top 1%)

EXPERIENCE

Technical University of Munich **07/2024 -**

Student assistant, Mathematics Department

- maintenance, implementation of new features, algorithmic changes to the course matching system

ETH Zürich **04/2024 - 10/2024**

Research and software development (Interdisciplinary project)

- improved storage and performance of existing indexing engine for large genomic data (SILO)
- adapted system for sparse sequences, reducing memory usage by more than 100x from baseline
- extensive work with C++, Roaring bitmap indexes; presented findings at WISE symposium

CodeChemistry **07/2022 - 04/2023**

Software Engineer, started with an internship then continued working Skopje

- responsibilities included taking part in the planning, design and implementation of new features
- contributed to streamlining and structuring state management patterns for developer-friendliness

PROJECTS

URL Shortener

Project for “Cloud-based data processing” (TUM)

- implemented RAFT in Rust, with each node utilizing a multi-threaded architecture supported by gRPC and protobuf for communication, LSM for log storage
- deployed using docker, performed extensive benchmarking and experimentation

Distributed real-time chat platform

Bachelor’s Thesis (FSCE)

- implemented eventually-consistent prototype messaging platform which is partially decentralized: clients can communicate peer-to-peer, while a centralized server functions as a backup
- developed protocols for synchronizing clients’ database states using Merkle trees for reconciliation

Parallelization of the Barnes-Hut algorithm for gravitational n-body simulations

Project for “Parallel and distributed computing” (FSCE)

- includes k-d trees, space-filling curves; written in C++ using Open MPI

Programming languages: C++, Python, Rust, Typescript, Java, C#
Languages: English (fluent), Macedonian (native), German (elementary)