

Christoph Anneser

✉ anneser@in.tum.de¹  [db.in.tum.de/~anneser](https://github.com/db.in.tum.de/~anneser)

Research Interests

I am interested in optimizing database systems by leveraging information such as hardware utilization and workload patterns adaptively at runtime.

Education

- | | | |
|---|--|------------|
| 2019 – today
<small>October</small> | TU Munich – Ph.D. student at the chair for database systems | Munich |
| | <ul style="list-style-type: none">○ Thesis: Adaptive Optimizations for Database Systems○ Working on the main-memory database system Umbra○ Advisors: Prof. Alfons Kemper and Prof. Thomas Neumann | |
| 2017 – 2019
<small>August September</small> | TU Munich – M.Sc. with honours in Software Engineering | Munich |
| | <ul style="list-style-type: none">○ Elite Graduate Program○ GPA: 4.0/4.0 (German grading system: 1.0)○ Thesis: “Evaluation of Succinct Trie Data Structures for Prefix Lookups”○ Advisor: Prof. Alfons Kemper | |
| 2014 – 2017
<small>September August</small> | TU Munich – B.Sc. in Information Systems | Munich |
| | <ul style="list-style-type: none">○ GPA: 3.8/4.0 (German grading system: 1.2)○ Thesis: “Generating Refactoring Proposals to Remove Clones from Automated System Tests Considering Reuse Capabilities”○ Advisor: Prof. Manfred Broy○ Valedictorian | |
| 2006 – 2014
<small>September June</small> | Kurfürst-Maximilian Gymnasium (High School) – Abitur | Burghausen |
| | <ul style="list-style-type: none">○ GPA: 4.0/4.0 (German grading system: 1.0)○ Thesis: “The Diffie-Hellman Key Exchange”○ Valedictorian | |

Industrial Experience

- | | | |
|---|---|--------|
| 2022 – 2023
<small>March January</small> | Database Researcher – Intel | Munich |
| 2021 – 2022
<small>October January</small> | Software Optimization Engineer – Intel | Munich |
| 2018 – 2018
<small>August September</small> | Software Engineer & Data Scientist – Maiborn Wolff | Munich |
| | <ul style="list-style-type: none">○ Developed a platform for the automated deployment of neural networks in Java○ Set up and maintain the project AWS infrastructure | |

¹ S/MIME certificate [SHA1: 72 7E 2A 03 8C 61 0F CC 63 77]


2016 – 2018 Software Engineer – Qualicen GmbH Munich
October May



- Full-stack developer for the .Net framework (C# & WPF)
- Wrote the Quality Inspector Plugin for Ranorex
- Implemented a clone detection that creates refactoring proposals for automated system tests



Teaching Experience


2021 – 2023 3x Teaching Assistant for Introduction to Informatics II TU Munich
2022 1x Teaching Assistant for Implementation of Compiling Databases TU Munich
2019 – 2023 3x Teaching Assistant for Database Systems TU Munich
2020 1x Teaching Assistant for Algorithms and Data Structures TU Munich



Selected Publications


2023 – 2023 **Adaptive Compression for Databases** 
Jan Sep
Leon Windheuser, Christoph Anneser, Huanchen Zhang, Thomas Neumann and Alfons Kemper. Leverage sampled access statistics to compress cold data segments in DuckDB – EDBT 2024.

2022 – 2023 **QO-Insight: Inspecting Steered Query Optimizers**  
Nov Aug
Christoph Anneser, Mario Petruccelli, Nesime Tatbul, David Cohen, Xhenggang Xu, Prithviraj Pandian, Nikolay Laptev, Ryan Marcus and Alfons Kemper. A frontend that enables database admins and query optimization experts to inspect steered query optimizers – VLDB 2023.

2021 – 2023 **AutoSteer: Learned Query Optimization for Any SQL Database**  
Oct Aug
Christoph Anneser, Nesime Tatbul, David Cohen, Xhenggang Xu, Prithviraj Pandian, Nikolay Laptev and Ryan Marcus. Propose a new framework that enables learned query optimization for almost any SQL database – VLDB 2023.

2022 – 2023 **Programming Fully Disaggregated Systems** 
Nov June
Christoph Anneser, Lukas Vogel, Ferdinand Gruber, Maximilian Bandle and Jana Giceva. Designed a new programming model for future data center hardware – HotOS 2023.

2020 – 2022 **Adaptive Hybrid Indexes**  
Aug Mar
Christoph Anneser, Andreas Kipf, Huanchen Zhang, Thomas Neumann and Alfons Kemper. Build hybrid index structures that take advantage of different encodings under skewed workloads – SIGMOD 2022.

2019 – 2020 **GeoBlocks** 
June Feb
Christian Winter, Andreas Kipf, Christoph Anneser, Thomas Neumann and Alfons Kemper. Enable fast analytical real-time spatial aggregations over arbitrarily shaped polygons – EDBT 2021

- 2019 – 2020 📺 📄
June March **The Case for Hybrid Succinct Data Structures**
Christoph Anneser, Andreas Kipf, Harald Lang, Thomas Neumann and Alfons Kemper.
 Explore combinations of state-of-the-art trie indexes (Adaptive Radix Tree) with succinct indexes (Fast Succinct Trie). Evaluate level-wise and branch-wise refinements using the example of geo-spatial joins – EDBT 2020
- 2019 – 2020 📄
June March **Adaptive Main-Memory Indexing for High-Performance Point-Polygon Joins**
Andreas Kipf, Harald Lang, [...], Christoph Anneser, Thomas Neumann and Alfons Kemper. Built an adaptive polygon index that allows joining points and arbitrarily shaped polygons. Our approach leverages true hit filtering to avoid expensive geometric computations in most cases. Multiple orders of magnitude faster than all yet existing approaches – EDBT 2020




Technical Skills

- Professional C++, Python, SQL, LaTeX, Shell
- Familiar OCaml, Rust, VimScript, R, Flex & GNU Bison, Javascript, C#
- Miscellaneous Linux, Vim, DevOps

Awards

- | | | |
|------|--------------------------------------|---|
| 2020 | Teaching Award | For the Best Undergraduate Informatics Course |
| 2019 | 1 st /17 | Best Graduate of M.Sc. Software Engineering |
| 2017 | 1 st /200 – Valedictorian | Best Undergraduate of B.Sc. Information Systems |
| 2016 | Max Weber Program Fellow | Elite Network of Bavaria |
| 2015 | best.in.tum | Program Aiming the Top 2% Students |
| 2014 | 1 st /45 – Valedictorian | Best Student at High School |

Links

-  db.in.tum.de/people/sites/anneser
-  github.com/christophanneser
-  linkedin.com/christoph-anneser