

DR. ALEX EL-SHAikh

Technical Project Lead • Software Architect
PhD in Computer Science



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PROJECT & DELIVERY

Coordination
Project Coordination
Stakeholder Alignment
Requirements Engineering
Risk & Dependency Management
Technical Decision-Making

Architecture
Software Architecture
Backend Systems
Cloud Architecture

Technical Foundation
Java / Spring Boot
PostgreSQL / SQL
AWS
Docker / Kubernetes

PROFILE

Technical project lead and software architect with a PhD in Computer Science. Experience coordinating interdisciplinary software and research initiatives, aligning stakeholders and requirements, and guiding delivery through technical decisions, risk and dependency management and hands-on engineering.

PROFESSIONAL EXPERIENCE

Cloud Specialist & Software Developer 08/2026 – Present
Hessische Zentrale für Datenverarbeitung (HZD) • Wiesbaden, Germany

- Architectural design of the database and persistence layer for the modernisation of tax systems used nationwide across Germany, including persistence-flow modelling and migration of the legacy system.
- Technical modernisation through cloud integration, focusing on secure and efficient processes and additional capabilities to support fraud prevention and detection.

Senior Software Engineer 04/2026 – 07/2026
Accelerated Solutions GmbH • Frankfurt am Main, Germany

- Coordinated implementation across requirements, architecture and development; supported delivery through technical decisions, reviews and mentoring.
- Contributed hands-on to Java / Spring Boot backend development, AWS integration and performance optimisation.

Postdoctoral Researcher 02/2025 – 02/2026
Imperial College London • London, United Kingdom

- Coordinated interdisciplinary work across computer science, biology and chemistry, aligning requirements and technical concepts.
- Led the technical design and evaluation of DNA-based storage architectures and economic models.

Research Fellow 11/2019 – 12/2024
Philipps-Universität Marburg • Marburg, Germany

- Owned research and software topics end-to-end; coordinated student projects and theses from planning through delivery.
- Developed software architectures for random access, indexing and query processing.

LANGUAGES

German	Native
Arabic	Native
English	Fluent

SELECTED HIGHLIGHTS

- 🏆 Best Workshop Paper Award, BTW NoDMC 2023
- 🏆 Editor's Choice, NAR Genomics and Bioinformatics (2022)

EDUCATION

📅 2019 – 2024	Dr. rer. nat. in Computer Science
📍 Philipps-Universität Marburg Marburg	Final grade: 1.0 • <i>magna cum laude</i>
📅 2016 – 2019	M.Sc. Computer Science
📍 Philipps-Universität Marburg Marburg	
📅 08/2016 – 12/2016	ERASMUS Semester
📍 Aalto University Helsinki, Finland	
📅 2012 – 2015	B.Sc. Computer Science
📍 Philipps-Universität Marburg Marburg	

SELECTED PROJECT EXPERIENCE

DNAContainer & Query Architecture	Marburg / Imperial College London
Translated interdisciplinary requirements into an object-based storage and query architecture and coordinated technical dependencies and student contributions.	
High-Scale Random Access	Research & Software Development
Owned the technical development and evaluation of scalable random-access mechanisms, expanding the addressable object space from hundreds to millions.	
Cloud Backend & Performance	Accelerated Solutions GmbH
Supported technical delivery across architecture, backend, AWS integration and performance; used reviews and technical decisions to keep implementation on track.	

RESEARCH & INNOVATION

Multiple first-author publications on DNA-based data storage, including *Scientific Reports* and *NAR Genomics and Bioinformatics*.

TEACHING & STUDENT SUPERVISION

Teaching in databases, software engineering and algorithms; supervision and coordination of Bachelor's and Master's theses.