# Curriculum Vitae

## Personal Information


Name **Alex El-Shaikh**

Address alex@el-shaikh.com


## Conferences and Talks

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07/2024 **Invited Poster Presentation (Athens, Greece) – Not Attended**

- Accepted abstract presentation at "Coding Theory and Algorithms for DNA-based Data Storage (IEEE ISIT)" in Athens, Greece.
- Abstract entitled "The five-minute rule for DNA data storage"

07/2023 **Speaker (Cairo, Egypt)**

- Talk entitled "DNAContainer: An object-based storage architecture on DNA" at the Ain Shams University in Cairo, Egypt

03/2023 **Speaker (Dresden, Germany)**

- Accepted paper presentation at "Novel Data Management Ideas on Heterogeneous Hardware Architectures (BTW)" in Dresden, Germany
- Paper entitled "DNAContainer: An object-based storage architecture on DNA"

03/2022 **Speaker (Marburg, Germany)**

- Accepted paper presentation at "The 1st International Conference on Data Storage in Molecular Media (DSMM)" in Marburg, Germany
- Paper entitled "High-scale random access on DNA storage systems"

## Publications

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- **Alex El-Shaikh** and Bernhard Seeger. "On supporting ad-hoc filter queries on DNA storage using customized $B^+$-trees". Under consideration, 2024 (not yet published).

- **Alex El-Shaikh** and Bernhard Seeger. "An extension of DNAContainer with a Small Memory Footprint". In: *Datenbank-Spektrum*, 23.3 (2023), pp. 211-220. DOI: 10.1007/s13222-023-00460-3

- **Alex El-Shaikh** and Bernhard Seeger. “DNAContainer: An object-based storage architecture on DNA”. In: *BTW 2023*. Gesellschaft für Informatik e.V., 2023, pp. 733-795.
  ***Best Workshop Paper***
  DOI: 10.18420/BTW2023-50

- **Alex El-Shaikh** and Bernhard Seeger. “Content-based filter queries on DNA data storage systems”. In: *Scientific Reports*, 13.1 (2023), p. 7053.
  DOI: 10.1038/s41598-023-34160-5

- **Alex El-Shaikh**, Marius Welzel, Dominik Heider, and Bernhard Seeger. “High-scale random access on DNA storage systems”. In: *NAR Genomics and Bioinformatics*. Oxford University Press, 4.1 (2022), lqab126.
  ***Editor’s Choice***
  DOI: 10.1093/nargab/lqab126

## Other Scientific Experiences

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- **Peer Review Activity**
  I have completed 20 peer reviews for high-ranking journals, including Nature Communications (Impact Factor: 14.7), Trends in Biotechnology (Impact Factor: 14.3), and Briefings in Bioinformatics (Impact Factor: 6.8).
  ORCID: https://orcid.org/0000-0001-6276-4020

- **Scientific Collaboration**
  I participated in a two-week staff ERASMUS program at Ain Shams University in Cairo, Egypt. During this time, I attended a workshop on "Scientific Research Insights and Cooperation". Additionally, I exchanged ideas on DNA data storage and new encryption methods during the discussion rounds.

- **Conducting Exercise Sessions for Students**
  I organized and conducted numerous exercise sessions to support lectures for both bachelor's and master's students. These sessions covered a wide range of topics, including linear algebra, analysis, database systems, NoSQL databases, geo-databases, software engineering, programming internships, object-oriented programming, and efficient algorithms.

- **Student Supervision**
  I supervised six bachelor's and master's students in computer science (University of Marburg), guiding them through their thesis projects on the topic of DNA data storage.

## Education

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2025 – present

**Postdoctoral Researcher in Computer Science**
- Imperial College London
- Research Associate in DNA Data Storage

2019 – 2024

**Ph.D. in Computer Science (Dr. rer. nat.)**
- University of Marburg
- Topic of dissertation “Implementing random access on DNA data storage systems”
- Grade: very good

2016 – 2019

**M.Sc. Computer Science**
- University of Marburg
- Minor subject: Economics
- Topic of master’s thesis “Lightweight Indexing on Data Streams”
- Grade: very good

08/2016 – 12/2016

**ERASMUS Semester in Computer Science**
- Aalto University, Helsinki (Finland)
- Improving English
- Gaining international experience
- Exploring the Finnish nature and culture

2012 – 2015

**B.Sc. Computer Science**
- University of Marburg
- Minor subject: Business Administration
- Topic of bachelor’s thesis “Developing an Android game with an interactive water simulation”
- Grade: very good

2011 – 2012

**B.Sc. Physics (not completed)**
- University of Marburg

2010 – 2011

**Studienkolleg (technology course)**
- University of Marburg
- For recognition of foreign high school graduation

2006 – 2009

**Secondary School Graduate**
- Secondary School, Medina (Saudi Arabia)
- Equivalent to a high school graduation

2005 – 2006

**Intermediate School Graduate**
- Intermediate School, Medina (Saudi Arabia)

2003 – 2005

**Intermediate School (to be completed)**
- Maadi Experimental School, Cairo (Egypt)

1998 – 2003

**Primary School Graduate**
- Maadi Experimental Language School, Cairo (Egypt)

## Personal Skills

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| Languages | German and Arabic (mother tongues), English (level C1) |
| Interests | sports (swimming, tennis, ping pong), travelling, teaching, debates |