

Curriculum Vitae

Personal Information

Name **Alex El-Shaikh**
Address alex@el-shaikh.com



Conferences and Talks

- 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

- **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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1093/nargab/lqab126)

Other Scientific Experiences

- **Peer Review Activity**
I have completed 17 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

2019 – 2024	Ph.D. in Computer Science (Dr. rer. nat.) <ul style="list-style-type: none">• University of Marburg• Topic of dissertation “Implementing random access on DNA data storage systems”• Grade: very good
2016 – 2019	M.Sc. Computer Science <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• Aalto University, Helsinki (Finland)• Improving English• Gaining international experience• Exploring the Finnish nature and culture
2012 – 2015	B.Sc. Computer Science <ul style="list-style-type: none">• 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) <ul style="list-style-type: none">• University of Marburg
2010 – 2011	Studienkolleg (technology course) <ul style="list-style-type: none">• University of Marburg• For recognition of foreign high school graduation
2006 – 2009	Secondary School Graduate <ul style="list-style-type: none">• Secondary School, Medina (Saudi Arabia)• Equivalent to a high school graduation
2005 – 2006	Intermediate School Graduate <ul style="list-style-type: none">• Intermediate School, Medina (Saudi Arabia)
2003 – 2005	Intermediate School (to be completed) <ul style="list-style-type: none">• Maadi Experimental School, Cairo (Egypt)
1998 – 2003	Primary School Graduate <ul style="list-style-type: none">• Maadi Experimental Language School, Cairo (Egypt)

Personal Skills

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