

# Mohamed Alzayat

*Software Engineer, AWS EC2 Nitro*

Saarbrücken, Germany

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📄 <https://zayat.github.io/>

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## Education

- Oct'16 – Dec'23 **PhD, Computer Science & Engineering**, Saarland University, Germany.  
Max Planck Institute for Software Systems (MPI-SWS), Saarbrücken, Germany. Advisors: Peter Druschel and Deepak Garg.  
Thesis: Efficient request isolation in Function-as-a-Service
- Oct'14 – Sep'16 **MSc, Computer Science**, GPA: 1.2/1, Saarland University, Germany.  
Max Planck Institute for Software Systems (MPI-SWS), Saarbrücken, Germany. Advisors: Peter Druschel and Deepak Garg.
- Sep'09 – Aug'14 **BSc, Computer Science & Engineering**, GPA: 1.16/1, German University in Cairo (GUC), Cairo, Egypt.  
Thesis completed at the German Research Center for Artificial Intelligence (DFKI). Advisors: Heiko Maus (DFKI), Andreas Dengel (DFKI), and Slim Abdennadher (GUC).

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## Experience & Internships

- Mar'23 - Present **Software Engineer**, Amazon Web Services, Dresden, Germany.  
Live Migration for EC2 Nitro.
- Jun'21 – Sep'21 **Software Engineer Intern**, Amazon Web Services, Dresden, Germany.  
Live Migration for EC2 Nitro.
- Feb'15 – Jul'15 **Research Student**, Cluster of Excellence MMCI. Saarbrücken, Germany.  
Cryptographic Systems Research Group, Secure Multi-Party Computation.
- Nov'14 – Dec'14 **Research Student**, German Research Center for Artificial Intelligence (DFKI). Kaiserslautern, Germany.  
Semantic and Proactive Context-Aware Task Management.
- Jul'14 – Sep'14 **Research Student**, German University in Cairo (GUC). Cairo, Egypt.  
Vehicular Context-Aware Intelligence.
- Apr'13 – Aug'13 **Research Student**, German Research Center for Artificial Intelligence (DFKI). Kaiserslautern, Germany.  
Semantic and Proactive Task Management, Bachelor Thesis.
- Feb'13 – Mar'13 **Research Intern**, Intel Research Labs. Cairo, Egypt.  
Video-over-wireless Team.
- Jul'12 – Aug'12 **Software Engineer Intern**, Robusta Development Studio. Cairo, Egypt.  
Web development Team.
- Jul'11 – Aug'11 **Intern**, Vodafone. Cairo, Egypt.  
I-Care Technical Support Team.

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## Teaching

- Oct'18 – Apr'19 **Teaching Assistant**, Distributed Systems Core Course, Saarland University, Saarbruecken, Germany.
- Oct'15 – Apr'16 **Teaching Assistant**, Operating Systems Core Course, Saarland University, Saarbruecken, Germany.
- Feb'11 – Jun'14 **Junior Teaching Assistant**, German University in Cairo, Cairo, Egypt.
- Introduction to Computer Programming (Spring'11,'12,'14, Summer'11)
- Data-structures and Algorithms (Fall'12)
- Databases I (Fall'12)
- Introduction to Communication Networks (Fall'12)
- Media and Networks lab (Spring'14)

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## Certifications

- Apr'14 **EMC<sup>2</sup> Associate Level Certified**, *Information Storage and Management*, Covering fundamentals of: Storage Systems, Storage Networking Technologies, Backup, Archiving, Replication, Cloud computing, Security and Management of storage infrastructure.

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## Honors & Awards

- Oct'16 – Feb'23 **Max Planck Society**, *PhD studies scholarship*.
- Sep'16 **Honors Degree**, *Master Studies*.
- Oct'15 – Sep'16 **Deutschlandstipendium**, *A 1-year partial scholarship for Masters studies*.
- Apr'15 – Sep'16 **International Max Planck Research School for Computer Science program (IMPRS-CS)**, *Master studies Fellowship*.
- Jul'14 **High Honors**, *Bachelor Studies*.
- Jun'14 **Featured Course Project**, *Computer & Networks Security course; our Linux Rootkit project got featured on the university's official GitHub account*.
- Mar'14 **Microsoft AppFactory Contest**, *Achieved 3rd place medal for my application "Sama3ly" (windows 8 app)*.
- Jun'12 **Software Engineering Cup at the German University in Cairo**, *Outstanding performance Medal; our team ranked 1st (14 members, 3 months long project)*.
- Apr'13 – Sep'13 **DAAD & DFKI**, *A 6-month scholarship to do my bachelor project and thesis at the German Research Center for Artificial Intelligence (DFKI)*.
- Sep'09 – Aug'14 **German University in Cairo**, *A 5-year scholarship (partial tuition fee waiver)*.

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## Languages

**Programming Languages:** Python and C.

**Human Languages:** Arabic (native), English (fluent), and German (B2).

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## Activities

- Oct'18 **Poster Presentation**, *Pacer: Efficient I/O Side-Channel Mitigation in the Cloud*, 13th USENIX Symposium on Operating Systems Design and Implementation (OSDI'18).
- Oct'11 – Jun'14 **BigBuddy Active Working Society - GUC**, Member of the Academic Team; responsible for organizing academic events and offering sessions to younger students.

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## Service

- CCS'21 **External Reviewer**, *2021 ACM SIGSAC Conference on Computer and Communications Security*.

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## Publications

- EuroSys'23 **Groundhog: Reconciling Efficiency and Request Isolation in FaaS**, *In Proceedings of the European Conference on Computer Systems (EuroSys'23)*.  
Mohamed Alzayat, Jonathan Mace, Peter Druschel, Deepak Garg
- Security'22 **Pacer: Network Side-Channel Mitigation in the Cloud**, *In Proceedings of the USENIX Security Conference (Security'22)*.  
Aastha Mehta, Mohamed Alzayat, Roberta De Viti, Björn B. Brandenburg, Peter Druschel, Deepak Garg
- IMC'21 **Selfish & Opaque Transaction Ordering in the Bitcoin Blockchain: The Case for Chain Neutrality**, *In Proceedings of the ACM SIGCOMM Internet Measurement Conference (IMC'21)*.  
Johnnatan Messias, Mohamed Alzayat, Balakrishnan Chandrasekaran, Krishna P. Gummadi, Patrick Loiseau, Alan Mislove
- ArXiv'21 **Modeling Coordinated vs. P2P Mining: An Analysis of Inefficiency and Inequality in Proof-of-Work Blockchains**.  
Mohamed Alzayat, Johnnatan Messias, Balakrishnan Chandrasekaran, Krishna P. Gummadi, Patrick Loiseau  
<https://arxiv.org/abs/2106.02970>
- SDBD'20 **On Blockchain Commit Times: An analysis of how miners choose Bitcoin transactions**, *In Proceedings of the Second International KDD Workshop on Smart Data for Blockchain and Distributed Ledger (SDBD'20)*.  
Johnnatan Messias, Mohamed Alzayat, Balakrishnan Chandrasekaran, Krishna P. Gummadi
- Master Thesis'16 **PolSim: Automatic Policy Validation via Meta-Data Flow Simulation**.  
Mohamed Alzayat, Deepak Garg, Peter Druschel