
Anas Toma

An-Najah National University, P.O. Box 7, Nablus, Palestine ♦ anas.toma@najah.edu

EDUCATION

Dr-Ing. Computer Engineering • Department of Informatics, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany	Very good (magna cum laude)	2016
M.Sc. Computer Engineering • Jordan University of Science and Technology, Irbid, Jordan.	Very good	2008
B.Sc., Computer Engineering • An-Najah National University, Nablus, Palestine	Very good	2005

EXPERIENCE

Program coordinator of M.Sc. Artificial Intelligence	Aug. 2020 - Now
Assistant professor An-Najah National University, Nablus, Palestine	Aug. 2019 - Now
Postdoctoral researcher Technical University of Dortmund (TU Dortmund), Germany	Jan. 2016 – July. 2019
Research associate Karlsruhe Institute of Technology (KIT), Germany	Oct. 2011 - Dec. 2015
System administrator Language center, Karlsruhe Institute of Technology (KIT), Germany	Jan. 2014 – Dec. 2015
Lecturer Computer engineering department, An-Najah National University, Palestine	Aug. 2008 - Apr. 2011
Teaching and research assistant Computer engineering department, An-Najah National University, Palestine	Aug. 2005 - Aug. 2006
Oracle database developer Delta Informatics, Amman, Jordan	June - Sept. 2004
Oracle database development course Computer and Communications Systems (CCS), Amman, Jordan	June - Aug. 2004

AWARDS

• DAAD Re-invitation Program for Former Scholarship Holders	2022
• Second Place Regional Winner , OpenCV AI Competition 2021	2021
• Best Paper Award , the 11 th International Conference on Bio-inspired Systems and Signal Processing (BIOSIGNALS/BIOSTEC)	2018
• Research Grant for Doctoral Candidates and Young Academics and Scientists (DAAD)	2011 - 2015

- Third Country **Scholarship** for Postgraduate Studies (**DAAD**) 2006 - 2008
 - **Second Position** in B.Sc. of computer engineering, An-Najah University, Palestine 2005
 - **Tuition Fees Waiver Award** for Outstanding Students, An-Najah National University, Palestine 2000 - 2005
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RESEARCH INTERESTS

- Machine learning and computer vision
 - High-performance and energy-efficient scheduling
 - Cloud and edge computing
 - Real-time and embedded systems
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PROJECTS

- E-Governance in Palestine and the MENA Region (INDIGO) 2021 – Now
 - Global Quality-Performance Optimization in Edge Computing Systems 2021 – Now
 - CIM returning experts program supported by the GIZ and ZAV 2020 – 2022
 - Research project B2 within the collaborative research center SFB876 supported by the DFG 2016 – 2019
 - Software campus - Implementation and evaluation of different real-time scheduling approaches for massively parallel hardware - Implementierung und Evaluierung verschiedener Echtzeit Scheduling Ansätze für massiv parallele Hardware (ESCHE) 2014 – 2015
 - SPP1500-Project - Generating and Executing Dependable Application Software on UnReliable Embedded Systems (GetSURE) 2013 – 2014
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TAUGHT COURSES

- Data Mining and Machine Learning
 - Digital Image Processing
 - Embedded and Cyber Physical Systems
 - Learning and Intelligence in Embedded Systems – A Proseminar
 - Real-time Operating System Design and Implementation
 - Artificial Intelligence
 - Algorithms and Computational Complexity
 - Computer Programming
 - Database Systems
 - Digital Circuits Design
 - Computer Architecture Lab
 - Microprocessor Lab
 - Embedded Control Lab
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SCIENTIFIC AND SOCIAL CONTRIBUTION

- DAAD Selection/Pre-selection Committee Member
 - Higher Education Institutions for the In-Country Programme for the Palestinian Territories
 - PhD & Master Scholarships in Germany for Students from Palestine
 - Reviewer or Co-Reviewer for:
 - IEEE Design & Test
 - Journal of Systems Architecture
 - IEEE Real-Time Systems Symposium (RTSS)
 - International Journal of Humanoid Robotics (IJHR)
 - Transactions on Embedded Computing Systems (TECS)
 - Design, Automation and Test in Europe Conference (DATE)
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- International Conference on Architecture of Computing Systems (ARCS)
 - Workshop on Adaptive and Reconfigurable Embedded Systems (APRES)
 - International Symposium on Low Power Electronics and Design (ISLPED)
 - International Workshop on Software and Compilers for Embedded Systems (SCOPE5)
 - IEEE International Conference on Cyber-Physical Systems, Networks, and Applications (CPSNA)
 - International Symposium on Power and Timing Modeling, Optimization and Simulation (PATMOS)
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SKILLS

- Programming languages (C++, VC++ and Java)
 - Image processing and analysis
 - Real time operating system design
 - Intelligent systems design
 - Oracle database and tools
 - Hardware design and implementation
 - Design and development of database systems
 - Graphic design
 - Network programming
 - Using Linux and Microsoft Windows operating systems
 - Others: VHDL, OpenCV, Matlab, Eclipse, Prolog, LaTeX, Photoshop, FreeRTOS, OpenCL and OpenMP.
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LANGUAGES

- Arabic: Mother tongue
 - English: Fluent
 - German: Very good
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REFERENCES

Available upon request.

PUBLICATIONS

International Journal Papers:

1. Nuha Odeh, Anas Toma, Falah Mohammed, Yousef Dama, Farah Oshaibi, and Muna Shaar. **An Efficient System for Automatic Blood Type Determination Based on Image Matching Techniques**. Applied Sciences 11, no. 11 (2021): 5225.
2. Mikail Yayla., Anas Toma, Kuan-Hsun Chen, Jan Eric Lenssen, Victoria Shpacovitch, Roland Hergenröder, Frank Weichert, Jian-Jia Chen. **Nanoparticle Classification Using Frequency Domain Analysis on Resource-Limited Platforms**. No 19: 4138, Sensors 2019.
3. Semeen Rehman, Kuan-Hsun Chen, Florian Kriebel, Anas Toma, Muhammad Shafique, Jian-Jia Chen and Jörg Henkel. **Cross-Layer Software Dependability on Unreliable Hardware**. In IEEE Transactions on Computers (TC), no. 1, pp. 1, 2015.
4. Inad Aljarrah, Anas Toma and Mohammad Al-Rousan. **An Automatic Intelligent System for Diagnosis and Confirmation of John's Disease**. International Journal of Intelligent Systems Technologies and Applications (IJISTA), 2015.
5. Anas Toma and Jian-Jia Chen. **Computation Offloading for Frame-Based Real-Time Tasks under Given Server Response Time Guarantees**. Leibniz Transactions on Embedded Systems (LITES), Vol. 1, Issue 2, pages 02:1-02:21, 2014.

International Conference Papers:

6. Anas Toma, Juri Wenner, Jan Eric Lenssen and Jian-Jia Chen. **Adaptive Quality Optimization of Computer Vision Tasks in Resource-Constrained Devices using Edge Computing**. In the 19th Annual IEEE/ACM International Symposium in Cluster, Cloud, and Grid Computing (CCGrid 2019), Larnaca, Cyprus, May 2019.
7. Mikail Yayla, Anas Toma, Jan Eric Lenssen, Victoria Shpacovitch, Kuan-Hsun Chen, Frank Weichert and Jian-Jia Chen. **Resource-Efficient Nanoparticle Classification Using Frequency Domain Analysis**. In BVM Workshop, Lübeck, Germany, March 2019.
8. Anas Toma, Vincent Meyers and Jian-Jia Chen. **Implementation and Evaluation of Multi-Mode Real-Time Tasks under Different Scheduling Algorithms**. In the 14th annual workshop on Operating Systems Platforms for Embedded Real-Time applications (OSPERS 2018), Barcelona, Spain, Barcelona, Spain, July 2018.
9. Anas Toma, Alexander Starinow, Jan Eric Lenssen and Jian-Jia Chen. **Saving Energy for Cloud Applications in Mobile Devices using Nearby Resources**. In the 26th Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP 2018), Cambridge, UK, March 2018.
10. Jan Eric Lenssen, Anas Toma, Albert Seebold, Victoria Shpacovitch, Pascal Libuschewski, Frank Weichert, Jian-Jia Chen and Roland Hergenröder. **Real-Time Low SNR Signal Processing for Nanoparticle Analysis with Deep Neural Networks**. In the 11th International Conference on Bio-Inspired Systems and Signal Processing (BIOSIGNALS 2018), Funchal, Portugal, January 2018, **(Best Paper Award)**.
11. Anas Toma, Santiago Pagani, Jian-Jia Chen, Wolfgang Karl and Jörg Henkel. **An Energy-Efficient Middleware for Computation Offloading in Real-Time Embedded Systems**. In the 22th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA 2016), Daegu, South Korea, August 2016.
12. Anas Toma, Jian-Jia Chen and Wei Liu. **Computation Offloading for Sporadic Real-Time Tasks**. In the 20th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA 2014), Chongqing, China, August 2014.
13. Wei Liu, Jian-Jia Chen, Anas Toma, Tei-Wei Kuo and Qingxu Deng. **Computation Offloading by Using Timing Unreliable Components in Real-Time Systems**. In the 51st ACM / EDAC / IEEE Design Automation Conference (DAC 2014), June 2014.
14. Anas Toma and Jian-Jia Chen. **Server Resource Reservations for Computation Offloading in Real-Time Embedded Systems**. In IEEE Symposium on Embedded Systems for Real-Time Multimedia (ESTIMedia), Montreal, Canada, Oct 2013.
15. Anas Toma and Jian-Jia Chen. **Computation Offloading for Frame-Based Real-Time Tasks with Resource Reservation Servers**. In Euromicro Conference on Real-Time Systems (ECRTS), Paris, France, July 2013.
16. Semeen Rehman, Anas Toma, Florian Kriebel, Muhammad Shafique, Jian-Jia Chen and Jörg Henkel. **Reliable Code Generation and Execution on Unreliable Hardware under Joint Functional and Timing Reliability Consideration**. In IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), Philadelphia, USA, April 2013.
17. Anas Toma and Jian-Jia Chen. **Computation Offloading for Real-time Systems**. In ACM 28th Symposium On Applied Computing (SAC), Coimbra, Portugal, March 2013.