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Generalized strictly periodic scheduling analysis, resource optimization, and implementation of adaptive streaming applications

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List of Publications

Journal Articles

- **Sobhan Niknam**, Peng Wang, Todor Stefanov. "Resource Optimization for Real-Time Streaming Applications using Task Replication". *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 37, No. 11, pp. 2636-2648, Nov 2018.
- Teddy Zhai, **Sobhan Niknam**, Todor Stefanov. "Modeling, Analysis, and Hard Real-time Scheduling of Adaptive Streaming Applications". *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 37, No. 11, pp. 2755-2767, Nov 2018.
(Authors contributed to the paper equally)

Peer-Reviewed Conference Proceedings

- **Sobhan Niknam**, Peng Wang, Todor Stefanov. "On the Implementation and Execution of Adaptive Streaming Applications Modeled as MADF". *In Proceedings of the 23rd International Workshop on Software and Compilers for Embedded Systems (SCOPES)*, Sankt Goar, Germany, May 25-26, 2020.
- Peng Wang, **Sobhan Niknam**, Sheng Ma, Zhiying Wang, Todor Stefanov. "EVC-based Power Gating Approach to Achieve Low-power and High Performance NoC". *In Proceedings of the 22nd Euromicro Conference on Digital System Design (DSD)*, Chalkidiki, Greece, August 28 - 30, 2019.
- Erqian Tang, **Sobhan Niknam**, Todor Stefanov. "Enabling Cognitive Autonomy on Small Drones by Efficient On-board Embedded Computing: An ORB-SLAM2 Case Study". *In Proceedings of the 22nd Euromicro Conference on Digital System Design (DSD)*, Chalkidiki, Greece, August 28 - 30, 2019.

- Peng Wang, **Sobhan Niknam**, Sheng Ma, Zhiying Wang, Todor Stefanov. "A Dynamic Bypass Approach to Realize Power Efficient Network-on-Chip". In *Proceedings of the 21st IEEE International Conference on High Performance Computing and Communications (HPCC)*, Zhangjiajie, Hunan, China, August 10 - 12, 2019.
- Peng Wang, **Sobhan Niknam**, Sheng Ma, Zhiying Wang, Todor Stefanov. "Surf-Bless: A Confined-interference Routing for Power-Efficient Communication in NoCs". In *Proceedings of the 56th ACM/EDAC/IEEE Design Automation Conference (DAC)*, Las Vegas, USA, June 2 - 6, 2019.
Winner of HiPEAC paper award
- **Sobhan Niknam**, Peng Wang, Todor Stefanov. "Hard Real-Time Scheduling of Streaming Applications Modeled as Cyclic CSDF Graphs". In *Proceedings of the 22nd International Conference on Design, Automation and Test in Europe (DATE)*, Florence, Italy, March 25 - 29, 2019.
- Peng Wang, **Sobhan Niknam**, Zhiying Wang, Todor Stefanov. "A Novel Approach to Reduce Packet Latency Increase caused by Power Gating in Network-on-Chip". In *Proceedings of the 11th International Symposium on Networks-on-Chip (NOCS)*, Seoul, South Korea, October 19 - 20, 2017.
- **Sobhan Niknam**, Todor Stefanov. "Energy-Efficient Scheduling of Throughput-Constrained Streaming Applications by Periodic Mode Switching". In *Proceedings of the 17th IEEE International Conference on Embedded Computer Systems: Architectures, Modeling, and Simulation (SAMOS)*, Samos, Greece, July 17 - 20, 2017.
- **Sobhan Niknam**, Arghavan Asad, Mahmood Fathy, Amir M. Rahmani. "Energy Efficient 3D Hybrid Processor-Memory Architecture for the Dark Silicon Age". In *Proceedings of the 10th International Symposium on Reconfigurable Communication-centric Systems-on-Chip (ReCoSoC)*, Bremen, Germany, Jun 29 - July 1, 2015.

Curriculum Vitae

Sobhan Niknam was born on February 28, 1990 in Tehran, Iran. He obtained his B.Sc. degree in computer engineering from Shahed University, Tehran, Iran, in 2012 and the M.Sc. degree in computer engineering from the Iran University of Science and Technology, Tehran, in 2014. In March 2015, he joined the Leiden Embedded Research Center, part of the Leiden Institute of Advanced Computer Science (LIACS) at Leiden University, as a Ph.D. candidate. His research work, which resulted in this thesis, was funded by NWO under project rCPS3. Besides his work as a researcher, he had been teaching assistant for several courses such as Digital Techniques, Computer Architecture, Operating Systems, and Embedded Systems and Software. Since February 2020, he has been working as a postdoctoral researcher at the University of Amsterdam.

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Finally, my long academic journey as a PhD student comes to its end. The past five years have been quite an intense and unforgettable experience, full of all sorts of overwhelming emotions - happiness, frustration, anxiety, inspiration, and a lot of hope! Finishing this hard, but the enjoyable journey would not have been possible without the help, guidance, and assistance from many extraordinary people whom I would like to express my gratitude.

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Sobhan Niknam

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