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System-level design for efficient execution of CNNs at the edge

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List of Publications

Journal Articles

- **Svetlana Minakova** and Todor Stefanov. "Memory-Throughput Trade-off for CNN-based Applications at the Edge". *Accepted for publication in ACM Transactions on Design Automation of Electronic Systems (TODAES)*, March 2022.
- **Svetlana Minakova**, Dolly Sapra, Todor Stefanov, Andy Pimentel. "Scenario Based Run-time Switching for Adaptive CNN-based Applications at the Edge". *In ACM Transactions on Embedded Computing Systems (TECS)*, vol. 21, Iss. 2, Article 14, March 2022.
- Paola Busia, **Svetlana Minakova**, Todor Stefanov, Luigi Raffo, Paolo Meloni. "ALOHA: A Unified Platform-Aware Evaluation Method for CNNs Execution on Heterogeneous Systems at the Edge". *In IEEE Access*, vol. 9, September 2021.

Peer-Reviewed Conference Proceedings

- Erqian Tang, **Svetlana Minakova**, Todor Stefanov. "Energy-efficient and High-throughput CNN Inference on Embedded CPUs-GPUs MPSoCs", *In Proceedings of the 21th International Conference on Embedded Computer Systems: Architectures, Modeling and Simulation (SAMOS'21)*, Virtual Conference, July 04-08, 2021.
- **Svetlana Minakova**, Erqian Tang, Todor Stefanov. "Combining Task- and Data-level Parallelism for High-Throughput CNN Inference on Embedded CPUs-GPUs MPSoCs". *In Proceedings of the 20th International Conference on Embedded Computer Systems: Architectures, Modeling and*

Simulation (SAMOS), pp. 18-35, Pythagoreio, Samos Island, Greece, July 05-09, 2020.

- **Svetlana Minakova** and Todor Stefanov. "Buffer Sizes Reduction for Memory-efficient CNN Inference on Mobile and Embedded Devices". In *Proceedings of 23rd Euromicro Conference on Digital System Design (DSD'20)*, pp. 133-140, Portoroz, Slovenia, August 26-28, 2020.
- Paolo Meloni, Daniela Loi, Paola Busia, Gianfranco Deriu, Andy D. Pimentel, Dolly Sapra, Todor Stefanov, **Svetlana Minakova**, Francesco Conti, Luca Benini, Maura Pintor, Battista Biggio, Bernhard Moser, Natalia Shepeleva, Nikos Fragoulis, Ilias Theodorakopoulos, Michael Masin, and Francesca Palumbo. "Optimization and deployment of CNNs at the edge: the ALOHA experience ". In *Proceedings of the ACM International Conference on Computing Frontiers 2019 (CF'19)*, pp. 326-332, Alghero, Italy, Apr. 30 - May 2, 2019.
- Paolo Meloni, Daniela Loi, Gianfranco Deriu, Andy D. Pimentel, Dolly Sapra, Bernhard Moser, Natalia Shepeleva, Francesco Conti, Luca Benini, Francesca Palumbo, Michael Masin, Oscar Ripolles, David Solans, Maura Pintor, Battista Biggio, Todor Stefanov, **Svetlana Minakova**, Nikos Fragoulis, and Ilias Theodorakopoulos. "Architecture-aware design and implementation of CNN algorithms for embedded inference: the ALOHA project". In *Proceedings of the 30th International Conference on Microelectronics (ICM'18)*, pp. 52-55, Sousse, Tunisia, Dec. 16-19, 2018.
- Paolo Meloni, Daniela Loi, Gianfranco Deriu, Andy D. Pimentel, Dolly Sapra, Bernhard Moser, Natalia Shepeleva, Francesco Conti, Luca Benini, Francesca Palumbo, Michael Masin, Oscar Ripolles, David Solans, Maura Pintor, Battista Biggio, Todor Stefanov, **Svetlana Minakova**, Nikos Fragoulis, and Ilias Theodorakopoulos. "ALOHA: an architectural-aware framework for deep learning at the edge". In *Proceedings of Intelligent Embedded Systems Architectures and Applications (INTESA'18)*, Turin, Italy, Oct. 4, 2018.

Curriculum Vitae

Svetlana Minakova was born on January 31, 1993 in Ryazan, Russian Federation. She obtained her B.Sc. degree in informatics and computer engineering from Bauman Moscow State Technical University, Moscow, Russian Federation, in 2015 and the M.Sc. degree in informatics and computer engineering from Bauman Moscow State Technical University, Moscow, Russian Federation, in 2017. In January 2018 she joined the Leiden Embedded Research Center (LERC), part of the Leiden Institute of Advanced Computer Science (LIACS) at Leiden University, as a Ph.D. candidate. Her research work, which resulted in this thesis, has received funding from the European Unions Horizon 2020 Research and Innovation project under grant agreement No. 780788. Besides her work as a researcher, she has been teaching assistant for courses such as Digital Systems Design and Embedded Systems and Software. Since September 2022 she has been working as an Applied AI/ML Scientist at Signify, The Netherlands.

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