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Towards design space exploration of industrial distributed cyber-physical systems

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List of Publications

Journal Article

- **Faezeh Sadat Saadatmand**, Todor Stefanov, Ignacio González Alonso, Andy D. Pimentel, and Benny Akesson. CompDSE: A Methodology for Design Space Exploration of Computing Subsystems Within Complex Cyber-Physical Systems. *IET Cyber-Physical Systems: Theory & Applications*, 10 (1), 2025.

Peer-Reviewed Conference Proceedings

- Marius Herget, **Faezeh Sadat Saadatmand**, Martin Bor, Ignacio González Alonso, Todor Stefanov, Benny Akesson, and Andy D. Pimentel. Design Space Exploration for Distributed Cyber-Physical Systems: State-of-the-art, Challenges, and Directions. In *Euromicro Conference on Digital System Design (DSD)*, pages 632–640. IEEE, 2022.
- **Faezeh Sadat Saadatmand**, Todor Stefanov, Ignacio González Alonso, Andy D. Pimentel, Benny Akesson, Marius Herget, and Martin Bor. Automated Derivation of Application Workload Models for Design Space Exploration of Industrial Distributed Cyber-Physical Systems. In *Industrial Cyber-Physical Systems (ICPS)*, pages 1–8. IEEE, 2024 *Best Paper Award*.
- **Faezeh Sadat Saadatmand**, Todor Stefanov, Andy D. Pimentel, Benny Akesson, and Ignacio González Alonso. Unraveling Parallelism in Automated Workload Modeling for Distributed Cyber-Physical Systems. In *Euromicro Conference on Digital System Design (DSD)*, pages 24-33. IEEE, September 2025.

Curriculum Vitae

Faezeh Sadat Saadatmand was born on 3 October 1992 in Tehran, Iran. She completed her pre-university education in Physics and Mathematics in Tehran. In 2011, she began her B.Sc. studies in Computer Engineering (Hardware) at Amirkabir University of Technology and graduated in 2015. She was then admitted to the M.Sc. program in Computer Engineering (Computer System Architecture) at Sharif University of Technology on the basis of outstanding academic performance, completing the degree in 2017. Afterward, she worked for three years in a technology startup, where she designed and developed user-interface programs that interacted with embedded systems. In March 2021, she joined Leiden University to pursue her Ph.D. in Computer Science within the Leiden Institute of Advanced Computer Science (LIACS), under the supervision of Dr. Todor Stefanov. Her doctoral research is conducted in collaboration with TNO-ESI, the University of Amsterdam, and ASML B.V., and is funded by NWO. During her Ph.D. studies, she followed a course in scientific conduct as part of her doctoral training at Leiden University. Alongside her research activities, she has served as a teaching assistant for multiple undergraduate and graduate courses between 2016 and 2025.

Acknowledgments

As I reach the last chapter of my PhD journey, I look back on the path that brought me here, which was shaped by curiosity, hard work, and many moments that taught me more than I expected. These years have had their ups and downs, but they have also been deeply rewarding and full of personal growth. I know I would not have made it this far without the support and kindness of many wonderful people, and I am truly grateful to each of them.

First of all, I would like to express my sincere gratitude to my supervisor, **Todor Stefanov**, for giving me the opportunity to join his group and for his guidance throughout my PhD. I am particularly grateful for his support and for teaching me how to structure my ideas more effectively and improve the clarity of my scientific writing.

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It was a pleasure to carry out my PhD within the DSE2.0 project, which allowed me to collaborate with and learn from people across different organizations. I would like to express my sincere gratitude to **Andy Pimentel**, whose continuous encouragement helped keep me moving forward even during periods when our progress was slower or less clear than we had hoped. I am also thankful to **Benny Akesson**, whose resilient and optimistic mindset was inspiring and always reminded us that we could overcome any challenge. I would also like to thank **Ignacio Alonso**. Beyond the technical insights, working with and talking to him always gave me a sense of warmth and belonging, like being part of a family.

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My heartfelt thanks go to my first friends in the Netherlands, **Robert and Joyce**, who welcomed me and my husband, Mahdi, from the moment we arrived at Schiphol and supported us through the challenges of daily life during the pandemic and beyond. Robert and Joyce, I truly believe you are angels who make the world a better place.

I would like to express my thanks to my family, especially my mother, **Nahid**, whose unwavering support and care have always been a source of strength for me, and my father, **Sadegh**, whom I sadly lost during the final stage of my PhD. He always believed in me, encouraged me to pursue the engineering sciences as he did, and taught me how to face challenges with confidence. Mama and Baba, I am truly grateful and proud to be your child.

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