

Fraunhofer-Institut für Integrierte Schaltungen IIS

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To Whom It May Concern

Mr. Amir Hossein Mohammad Amri, born October 31, 1997, performed a discipline-oriented internship from March 4, 2024 until May 30, 2024 with the »Communication Systems« division of Fraunhofer Institute for Integrated Circuits IIS.

The Fraunhofer Institute for Integrated Circuits IIS is one of the world's leading application-oriented research institutions for microelectronic and IT system solutions and services. It is the largest of all Fraunhofer Institutes.

Mr. Amri supported the research group »Technologies and Applications«. During his tenure, Mr. Amri undertook a comprehensive and challenging internship project, demonstrating exceptional dedication and expertise in the following key tasks:

- Research on QoS-Aware Schedulers: He conducted in-depth research on state-of-the-art Quality of Service (QoS) aware schedulers, exploring both Reinforcement Learning (RL)-based and heuristic scheduling algorithms. This involved critically analyzing existing literature and identifying the most promising approaches.
- Orientation with C-V2XSim Simulation Framework: He familiarized himself thoroughly with the C-V2XSim simulation framework and its implementation requirements. This included understanding the intricacies of the framework, setting up the simulation environment, and learning the necessary coding practices.
- Implementation of Schedulers: He implemented selected state-of-the-art benchmarks into the C-V2XSim simulation framework. Notable implementations included the Generalized Proportional Fair Scheduling and QoS-Aware Scheduler. This task required translating theoretical algorithms into practical, working code within the simulation environment.
- Generation of Comparison and Validation Results: He generated comprehensive comparison and validation results for the newly added benchmarks, rigorously testing them against the existing implementations. This involved a detailed analysis to ensure accuracy and effectiveness, providing valuable insights into the performance improvements.

Mr. Amri has excellent expertise due to his study and the internship. Especially his knowledge in the fields of Communications systems and C++/Matlab development need to be highlighted at this point.

In executing the tasks assigned to him, he permanently proceeded in an extremely careful and systematic way, in which he always showed very good analytical and problem-solving skills. His work was also marked by a consistently very independent and highly creative functioning. In the service he provided he always showed initiative, great diligence and extraordinary enthusiasm. We were always extremely satisfied with the results of his work, mainly revealing within his very good research skills and when implementing a generalized proportional fair and QoS-Aware Heuristic Scheduler.

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The service rendered by him perfectly satisfied our expectations in every respect. Thanks to his very good manner and his very obliging nature he was always highly valued.

We thank Mr. Amri for his always good and successful collaboration and wish him all the best and every success for his personal and professional life.

Erlangen, May 30, 2024



Dr.-Ing. Stefan Eck
Head of Technologies and Applications group