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General Information

Alexey Cheptsov is a scientific researcher at the High Performance Computing Center Stuttgart (HLRS) in Germany. He obtained a PhD degree in Computer Science in 2007 and an Engineering doctorate degree in 2021. His research focus lies on different topics related to supercomputing technology, such as programming models for parallel software engineering, middleware for supercomputing infrastructures, high-level tools and workflow design for end-users. He has been conducting research within several European and German national projects, currently in the EU's ChEASE-CoE¹ (Center of Excellence for Geoscience) project.

The essence of Alexey Cheptsov's research activity is to strive to simplify the quite complex High Performance Computing (HPC) technologies for the users while keeping the required performance and scalability of the applications – a simple view that however requires complex solutions. This is especially true for the new HPC application domains like Data Analytics – an essential research direction, with which Alexey Cheptsov is currently dealing at HLRS. The importance of supercomputing support for data-centric application workflows was recognised with the emergence of the Big Data hype at the research horizon in about 2010. Alexey was working in the direction of enabling a very promising HPC technology – Message Passing Interface (MPI) – to data analytics application. One of the first results in this work direction was published at the **IARIA's SEMAPRO conference** in 2012 (A. Cheptsov: Enabling High Performance Computing for Semantic Web Applications by Means of Open MPI Java Bindings). This work was distinguished with a Best Paper award. The research results described in the paper had paved the way to a promising technology of Java applications support by supercomputers, taken up by numerous research, innovation, and industrial projects in the EU and internationally. In 2013, Alexey in cooperation with Axel Tenschert presented an implementation of a challenging Semantic Web use case – Statistical Semantic Spaces analysis – with the previously elaborated technology. This publication won the Best Paper Award at the **IARIA's SEMAPRO conference** in 2013 (A. Cheptsov, A. Tenschert: Parallel Search Through Statistical Semantic Spaces for Querying Big RDF Data Proceedings of the Seventh International Conference on Advances in Semantic Processing, pp. 1-6). The success of the participation at the IARIA conference was taken up by Alexey's student Raoul Schönhof, whose paper (R. Schönhof, A. Tenschert, A. Cheptsov: Towards Legal Knowledge Representation System Leveraging RDF. Proceedings of the Eighth International Conference on Advances in Semantic Processing, pp. 13-16) was nominated for publication at the **IARIA's International Journal On Advances in Software**.

¹ <https://cheese-coe.eu/>