

Intelligent Design Space Exploration for High-Level and System Synthesis

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Abstract—In this talk, I will detail some of the approaches for design space exploration (employing multiobjective heuristic and bioinspired optimization algorithms) that we have introduced in open source design automation frameworks, discussing how intelligence can facilitate the automated generation of accelerators and systems along different (and often contrasting) metrics. I will also provide an overview of the Software Defined Accelerators From Learning Tools Environment (SODALITE), an open source high-level machine learning frameworks-to-verilog compiler for the automated generation of ML accelerators hosted on Application-Specific Integrated Circuits (ASICs) chiplets, highlighting opportunities for ML aided design space exploration.