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[Home](#) > A high-performance portable abstract interface for explicit SIMD vectorization

A high-performance portable abstract interface for explicit SIMD vectorization ^[1]

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is work establishes a scalable, easy to use and efficient approach for exploiting SIMD capabilities of modern CPUs, without the need for extensive knowledge of architecture specific instruction sets. We provide a description of a new API, known as UME::SIMD, which provides a flexible, portable, type-oriented abstraction for SIMD instruction set architectures. Requirements for such libraries are analysed based on existing, as well as proposed future solutions. A software architecture that achieves these requirements is explained, and its performance evaluated. Finally we discuss how the API fits into the existing, and future software ecosystem.

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