

## INVITATION TO THE LECTURE

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# FLOATING POINT ARITHMETIC AND ITS PITFALLS

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The implementation of numerical algorithms in modern computing usually relies on IEEE 754 floating-point arithmetic. While highly efficient, this discrete representation of real numbers introduces inherent limitations that can compromise numerical stability. This presentation examines the architecture of floating-point formats and explores several pitfalls, such as round-off errors. Furthermore, we discuss the recent shift toward mixed-precision algorithms—a trend driven by hardware increasingly targeting AI applications—that tries to balance computational throughput with the need to maintain the required accuracy of the solution.