Ph.D. in Information Technology
Thesis Defense

November 27th, 2026
at 2:00 pm
Sala Schiavoni – building 20A

Marco VENERE - XXXIX Cycle

Titolo: ENHANCING QUANTUM COMPUTING THROUGH DESIGN AUTOMATION: A FULL-STACK PERSPECTIVE

Supervisor: Prof. Marco D. Santambrogio

Abstract:

Quantum Computing (QC) is an emerging paradigm of computation, based on principles from quantum mechanics, that has the potential to achieve exponential speedup over classical algorithms for a number of relevant use cases. Unfortunately, the overall software/hardware stack for QC appears still rudimentary. Therefore, this thesis aims to offer improvements to the main layers of the QC software/hardware stack, by introducing expertise from classical computer science, and, specifically, from design automation. Our aim is to enhance QC through design automation in a full-stack perspective, that is, by focusing on algorithms, compilation, and hardware, and the intersection of these fields.

PhD Committee

Prof. Paolo Cremonesi, Politecnico di Milano

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