

Program Adaptation based on Program Specialization

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Program development often has to address two conflicting goals: on the one hand, a program must adapt to a wide range of situations (e.g., large set of problems, varying usage patterns, and evolving hardware features); and, on the other hand, the same program must be as small and fast to execute as one dedicated to a specific situation.

In this talk, we show how program specialization can reconcile these conflicting goals by enabling programs to be highly adaptable without loss of efficiency.

We present various strategies of adaptation ranging from parameterized programs to interpreters, and show how program specialization can uniformly be used to map an adaptable program into an efficient one.