

Virtual Machine Learning: Thinking like a Computer Architect

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Modern commercial software is written in languages that execute on a virtual machine. Such languages often have dynamic features that require rich runtime support and preclude traditional static optimization. Implementations of these languages have employed dynamic optimization strategies to achieve significant performance improvements.

In this talk I will describe some of these strategies and demonstrate their effectiveness. I will then argue that further advances in this field are being hindered by our bias toward adapting traditional static optimization techniques. Instead, we need to think more like a computer architect to create new approaches to optimization in virtual machines.