Mining Precise Specifications
(Abstract)

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Recent advances in software validation and verification make it possible to widely automate the check whether a specification is satisfied. This progress is hampered, though, by the persistent difficulty of writing specifications. Are we facing a "specification crisis"? By mining specifications from existing systems, we can alleviate this burden, reusing and extending the knowledge of 60 years of programming, and bridging the gap between formal methods and real-world software. But mining specifications has its challenges: We need good usage examples to learn expected behavior; we need to cope with the approximations of static and dynamic analysis; and we need specifications that are readable and relevant to users. In this talk, I present the state of the art in specification mining, its challenges, and its potential, up to a vision of seamless integration of specification and programming.