# Program Invariants

## Joël Ouaknine

Max Planck Institute for Software Systems, Saarbrücken, Germany
Oxford University, UK
https://people.mpi-sws.org/~joel/
joel@mpi-sws.org

───── **Abstract** ─────

Automated invariant generation is a fundamental challenge in program analysis and verification, going back many decades, and remains a topic of active research. In this talk I'll present a select overview and survey of work on this problem, and discuss unexpected connections to other fields including algebraic geometry, group theory, and quantum computing. (No previous knowledge of these topics will be assumed.)

This is joint work with Ehud Hrushovski, Amaury Pouly, and James Worrell.