## An Introduction to Lean

## Jeremy Avigad

Carnegie Mellon University

Computational proof assistants, which allow users to write mathematics in a way that correctness can be checked by a computer, have been around for more than half a century. You can think of a proof assistant as being something like a word processor for mathematics, but one that understands the precise language and rules of mathematical reasoning.

In recent years, the Lean proof assistant has gained prominence in the mathematical community and has been used to formalize important contemporary results. It has also served as the basis for several projects around AI for mathematics. I will survey the state of affairs, show you what it looks like to use Lean, and suggest ways you can get involved.