

1154-03-1280      **John Harrison\*** (jrh013@gmail.com). *Automated Reasoning: retrospective and current progress.*

The subject of "automated reasoning" or "automated theorem proving" has been around since pioneering experiments in the 1950s on early computers. Since that time, it's undergone a few boom-and-bust cycles where unbridled optimism about checking mathematical proofs, proving correctness of computer systems and perhaps even finding new mathematical results has alternated with lulls and spells of disillusionment. Nevertheless there has been steady progress in the field, with some substantial recent achievements in the formalization of mathematics (e.g. the Flyspeck and Odd Order Theorem projects) and proofs of computer correctness (e.g. seL4 microkernel and CompCert compiler). In this talk I will give a broad survey of how the field has developed and talk about interesting recent developments. (Received September 14, 2019)