

Verification games: Making software verification fun

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Program verification is the only way to be certain that a given piece of software is free of (certain types of) errors – errors that could otherwise disrupt operations in the field. To date, formal verification has been done by specially-trained engineers. Labor costs make formal verification too costly to apply beyond small, critical software components.

Our goal is to make software verification more cost-effective by reducing the skill set required for verification and increasing the pool of people capable of performing verification. Our approach is to transform the verification task (a program and a goal property) into a visual puzzle task – a game – that gets solved by people. The solution of the puzzle is then translated back into a proof of correctness. The puzzle is engaging and intuitive enough that ordinary people can through game-play become experts. It is publicly available to play, and game players have produced proofs of security properties for real programs.

This talk will present the design goals and choices for both the game that the player sees and for the underlying program analysis. It will conclude with implications to gaming, programming, and beyond.

