Tool-Assisted Speedruns

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Why I’m Giving This Talk
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Allowed:
• Emulators
• Slowdown (frame by frame)
• Savestates/re-records
• Input/RAM viewers
• Disassembling game code

Not allowed:
• Modifying the game
Tool-Assisted Speedruns

**Goal:** beat the game as fast as possible

- Power-on to final input

**Real goal:** be entertaining

- Tool-assisted superplays
- Bend the definition of “as fast as possible”
The Extent of TASVideos

A huge range of speedruns:

- Extreme skill and luck: Maybe humanly possible
- Breaking the game: Definitely not humanly possible
- Speedruns as art: ???

Human Difficulty
Part 1: Extreme Skill/Luck
Extreme Skill: Super Monkey Ball
Extreme Skill: Super Monkey Ball
Extreme Skill
Extreme Luck: Clue
Extreme Luck: Clue
Extreme Luck: RPGs
Part 2: Breaking the Game
Breaking SM64: The A Button Challenge
What Would You Do For An A Press?
In this case, the distance that we have to cover in one quarter step is \(50/2 \approx 70.71\). Thus, we would only need a speed of at least \(200/2 \approx 282.84\).
What Would You Do For An A Press?
Friendly Competition
Breaking Kirby Super Star: ???
The reason why the game freaks out when you try to climb a ladder up and down at the same time is because it doesn't expect you to do that.

The initial glitch happens in the SA1 processor which indexes a location wrong and jumps to garbage code [...] It manages to lead the CPU to the controller registers [...] where then the fun begins. When I say the fun begins I don't actually mean fun, because I now have to deal with two processors and a destroyed RAM.

I managed to kinda see the addresses I have to change for example changing the gamemode ($7390) to cutscene (0x0008) or the game chosen ($32EA) to Milky Way Wishes (0x0005). [...] I reset the SA1 processor and set it to a new location in SA1-IRAM, where I wrote a new code for it to execute, because not only RAM was damaged, the stack and direct page register were corrupted too. I changed all values and the last cutscene started.
“Arbitrary Code Execution”
More Really Broken Games
Part 3: Speedruns as Art
Brain Age
Brain Age
TASing is Art

TASes bring people together to solve problems in **creative, entertaining** ways

This takes:
- Gamers, to find creative, out-of-the-box strategies
- TASers, to plan and execute speedruns
- Programmers, to build the tools that make it all work

This could be **you**!