



EdgeDroid

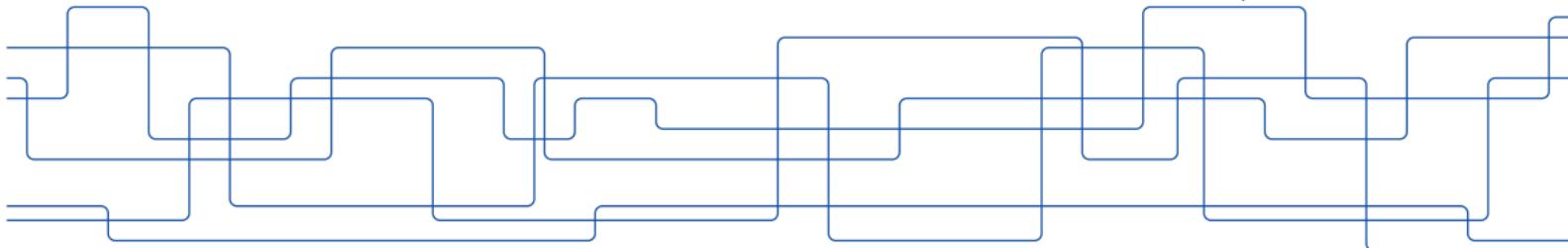
An Experimental Approach to Benchmarking Human-in-the-Loop Applications

M. Olguín Muñoz[†], J. Wang[‡], M. Satyanarayanan[‡] and J. Gross[†]

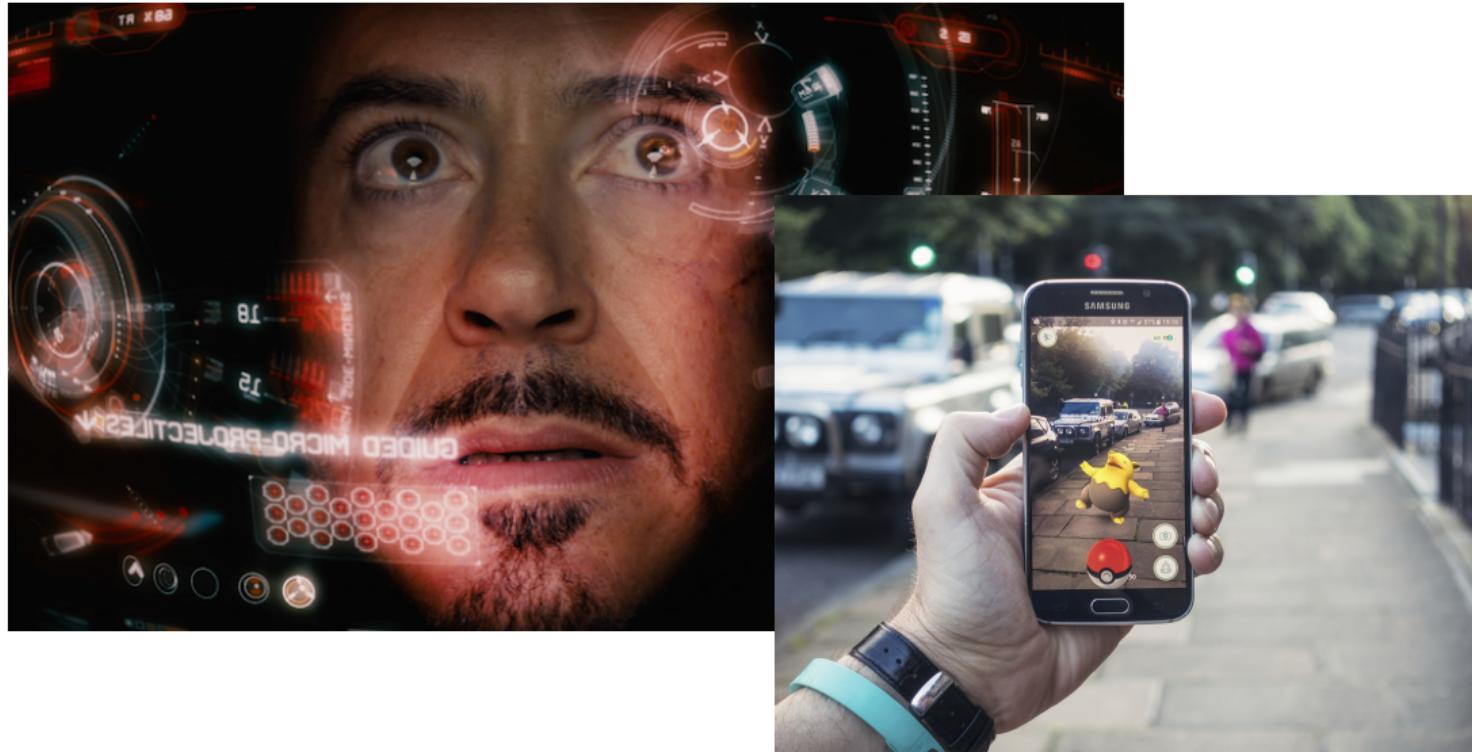
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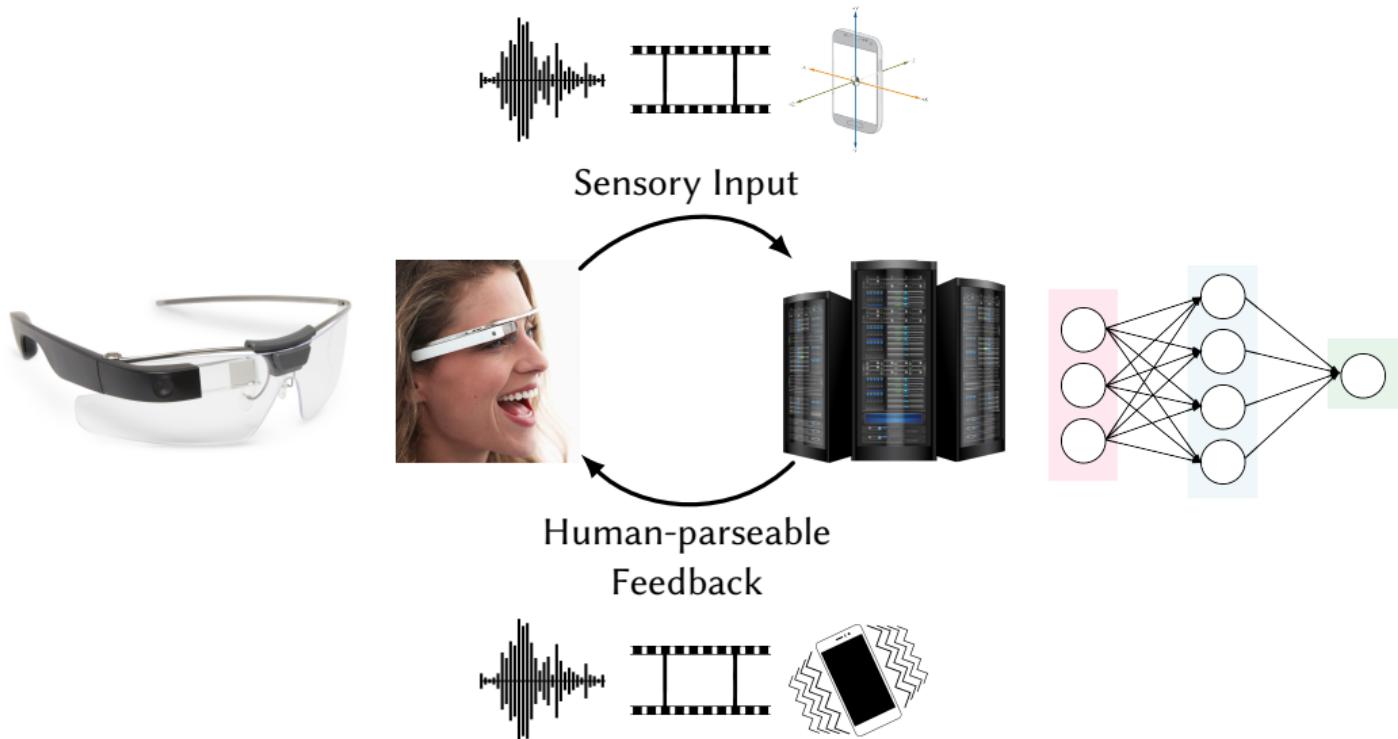
HotMobile'19 Session 5: February 28th 2019, Santa Cruz, CA



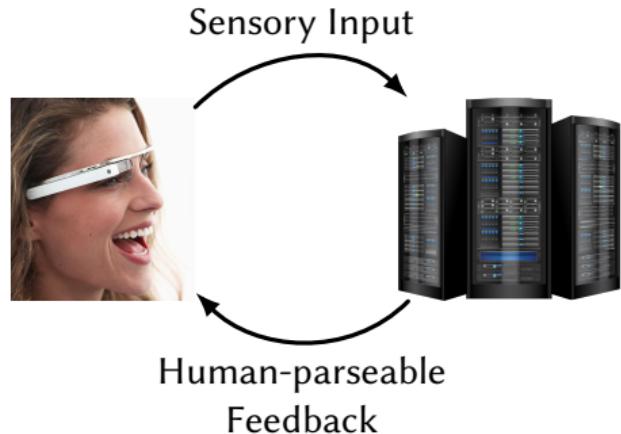
Introduction



Human-in-the-Loop Applications



Scaling



No solution yet?

Our Contributions

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- ▶ A methodology for benchmarking human-in-the-loop applications.

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- ▶ EdgeDroid: A benchmarking tool-suite.

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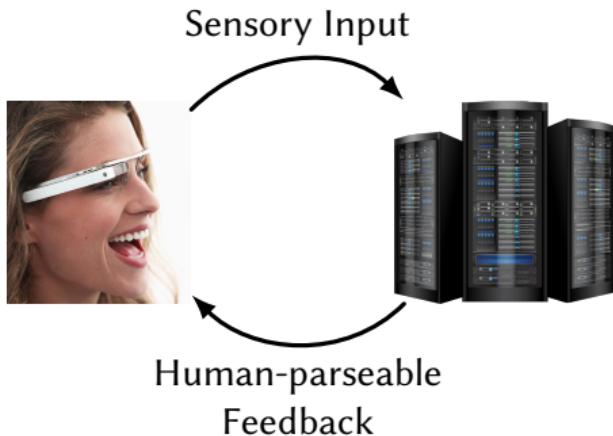
- ▶ A methodology for benchmarking human-in-the-loop applications.
- ▶ EdgeDroid: A benchmarking tool-suite.
- ▶ A set of experiments and measurements which show the effectiveness of the approach.

Outline

- Introduction
- **Background**
- EdgeDroid: Experimentally Benchmarking Human-in-the-Loop
- Conclusions

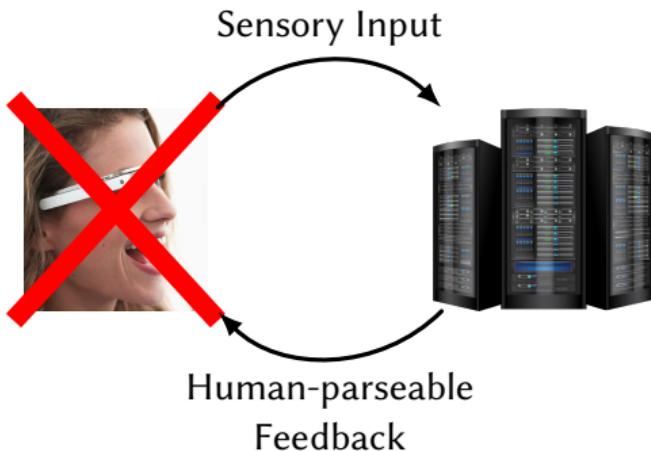
Previous & Related Work

Motivation



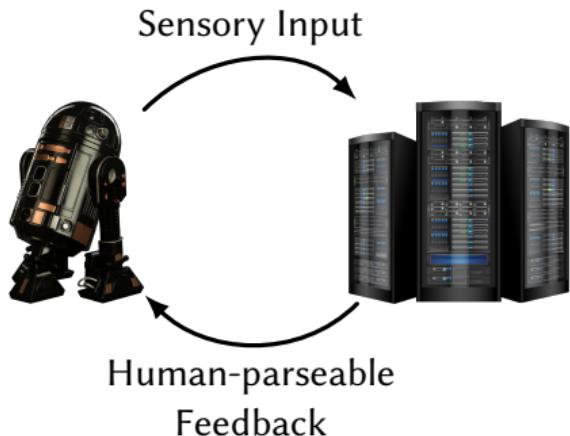
Benchmarking human-in-the-loop applications is HARD!

Motivation



What if we could do away with the human users?

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EdgeDroid: Requirements

- ▶ Generate realistic, real-time inputs.
- ▶ Correctly react to feedback.



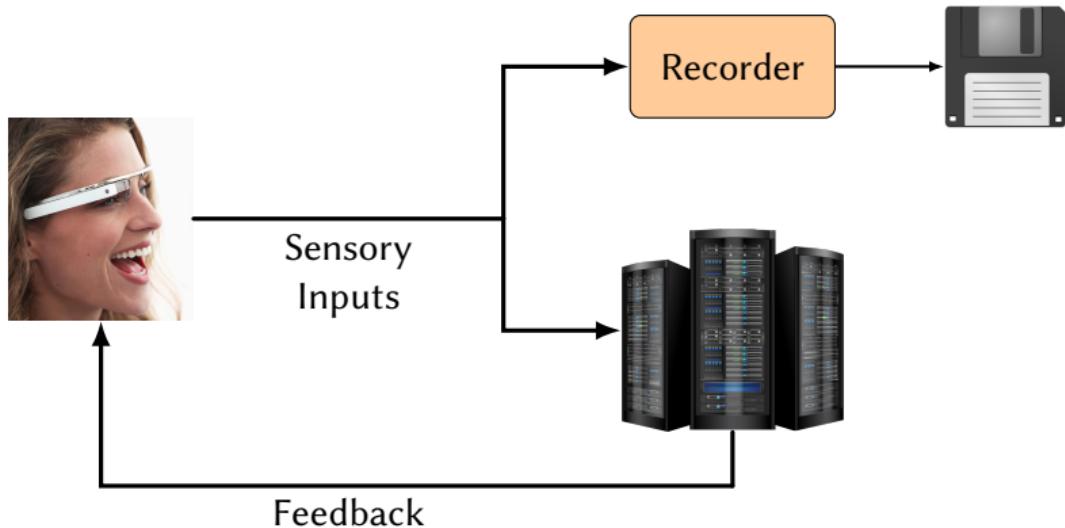
EdgeDroid: Requirements

- ▶ Generate realistic, real-time inputs.
 - ▶ Trace of human-generated inputs.

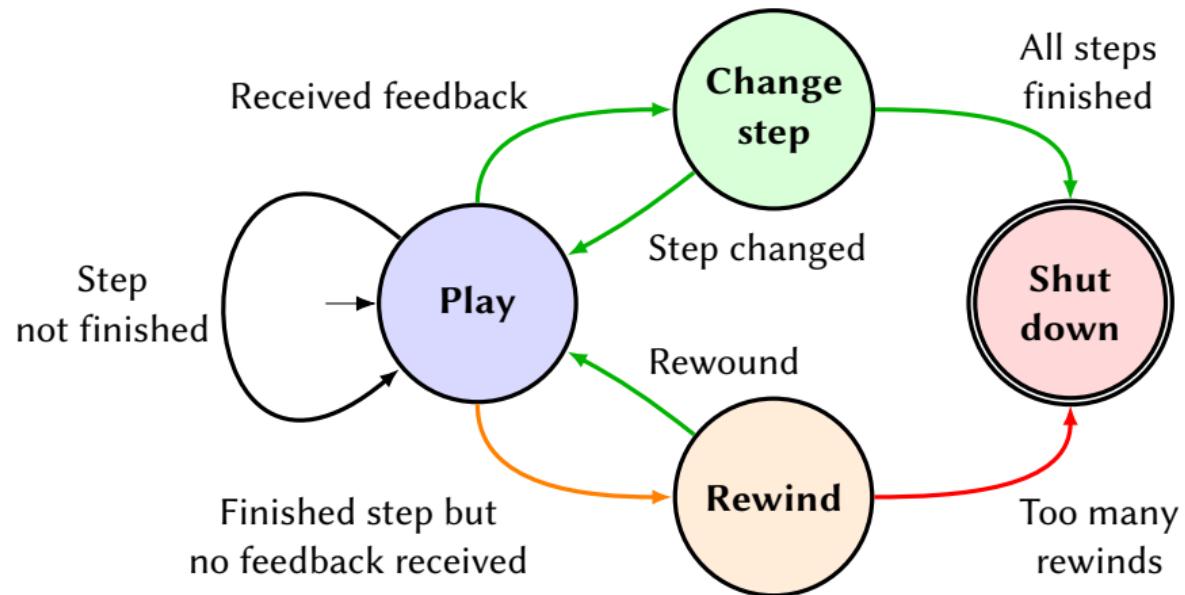
- ▶ Correctly react to feedback.
 - ▶ Model of human interaction.



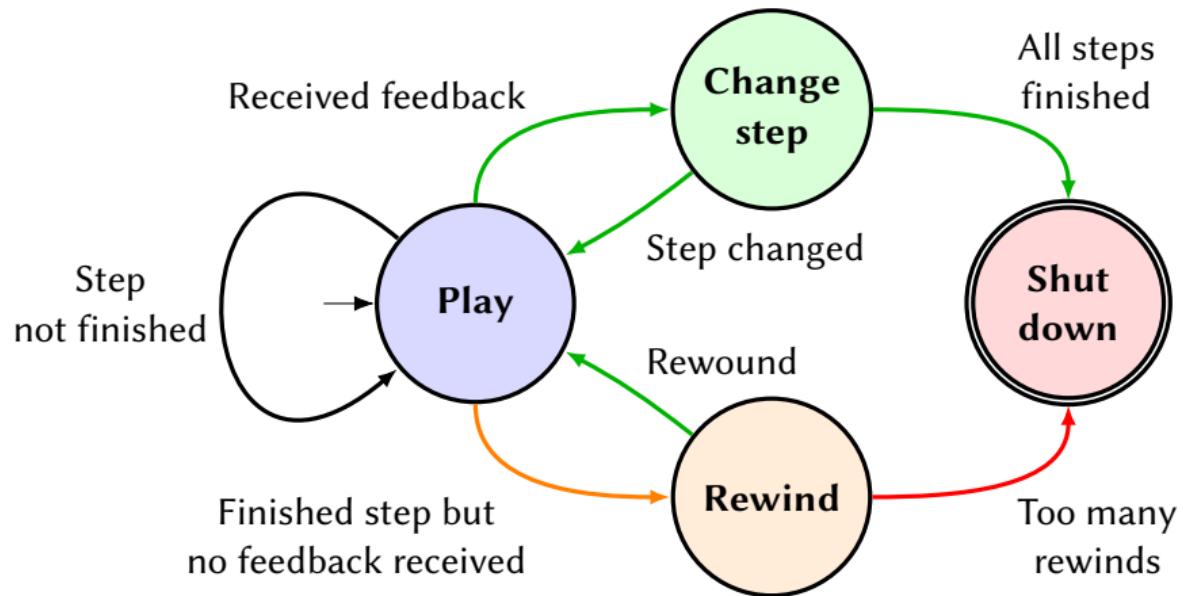
EdgeDroid: Tracing



EdgeDroid: User Model

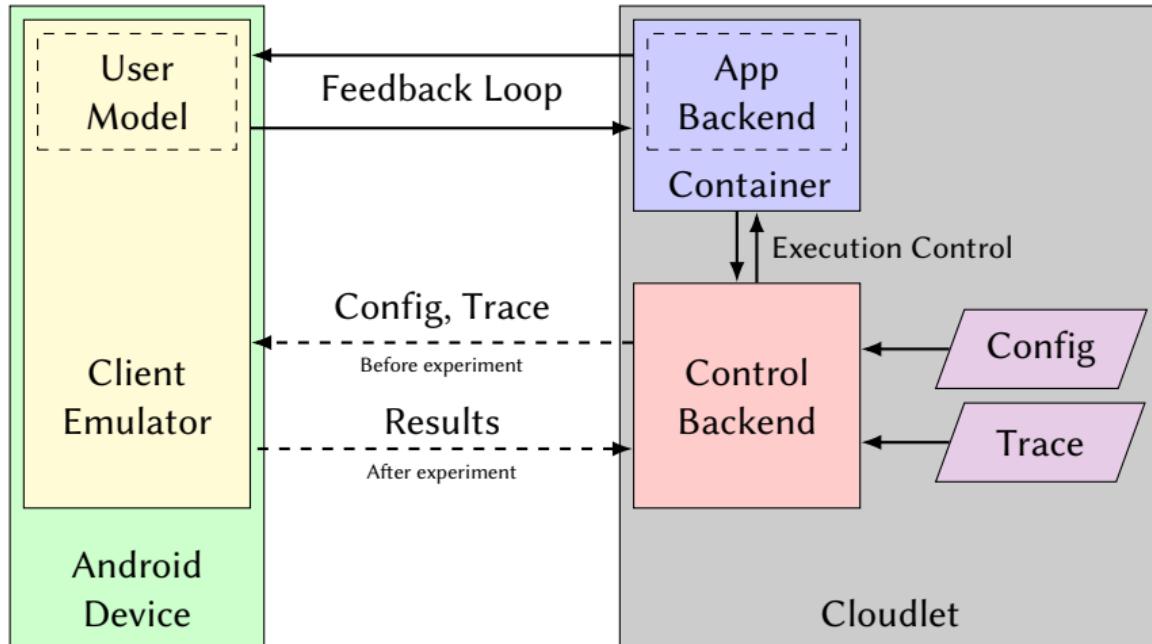


EdgeDroid: User Model

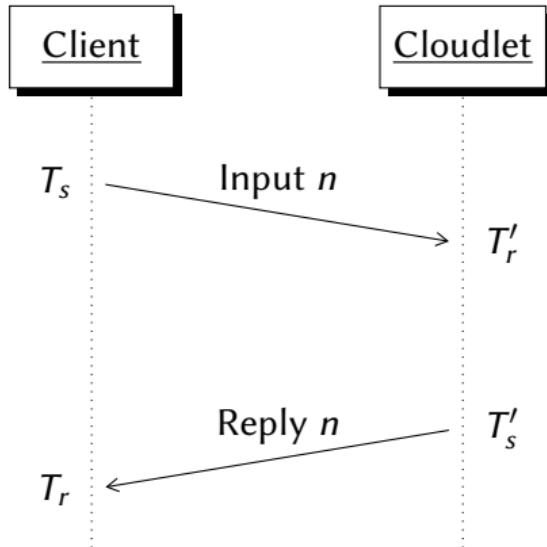


Currently working on a more thorough characterization of human behavior.

Implementation



Timestamping



Evaluation

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Conclusions