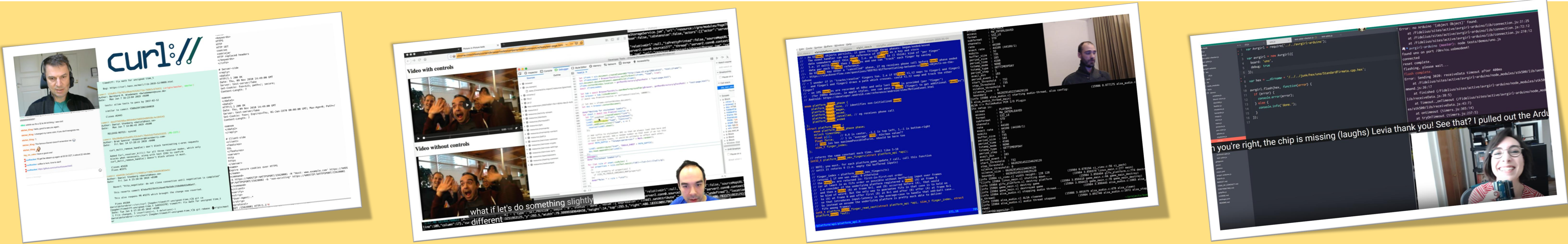


Supporting Software Engineering Research and Education by Annotating Public Videos of Developers Programming

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Observing Developers' Behavior via Public Videos



Characteristics:

- 1. Not rehearsed.
- 2. Illustrate developers with different level of experience work in different kind of projects. The four images above are examples of developers working in open source projects such (.e.g., cURL, and Firefox) with hundreds to million lines of code.
- 3. Include developers' activity in tasks involving implementing features, debugging, and refactoring.

Challenges:

- 1. Videos are scattered over the Internet, hosted in YouTube, Twitch and Reddit.
- 2. Cannot query for activity or practice of interest. [examples]

A Proposed Solution: A Centralized Crowdsourced Repository of Annotated Videos

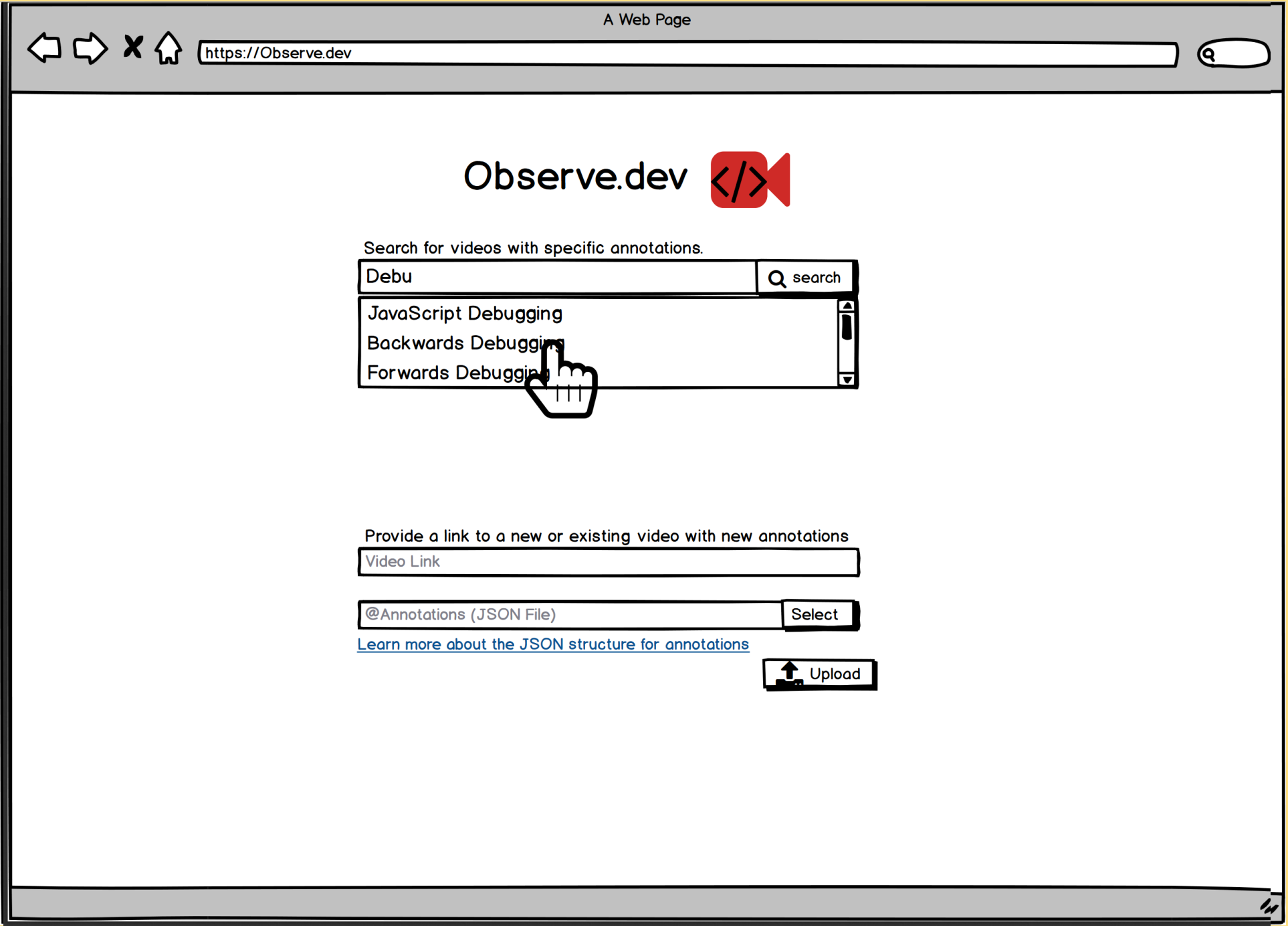


Fig 1: Users can search for annotations or upload new annotations.

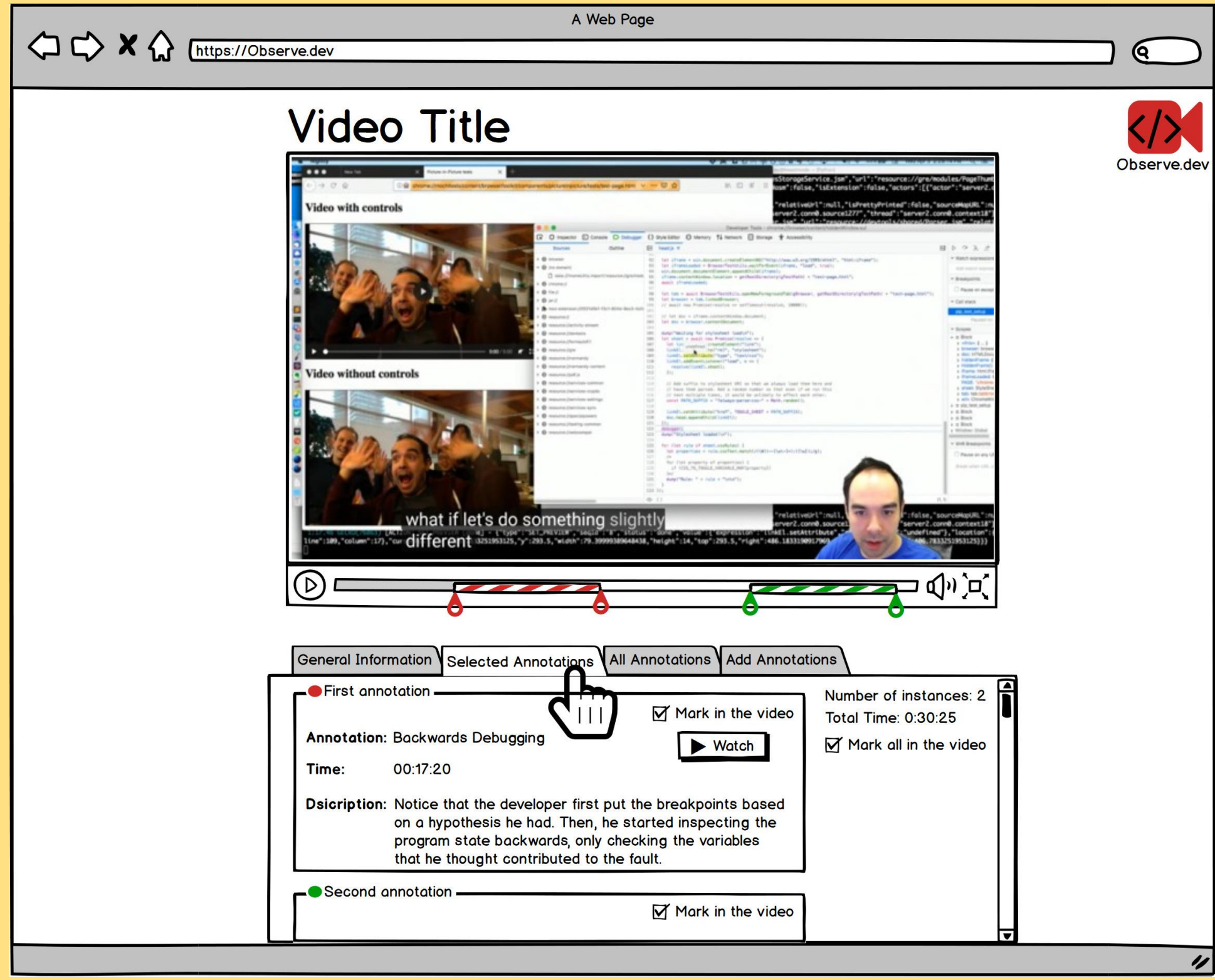


Fig 3: Users can watch videos containing the annotations of interest.

Example 1

Motivation: An instructor wants to share videos with her students that demonstrate how professional developers use TDD.

Example 2

Motivation : A Ph.D. student wants to watch examples of developers debugging that illustrate information foreign theory (IFT).

Example 3

Motivation : A researcher wants to understand the barriers that developers face while debugging JavaScript.

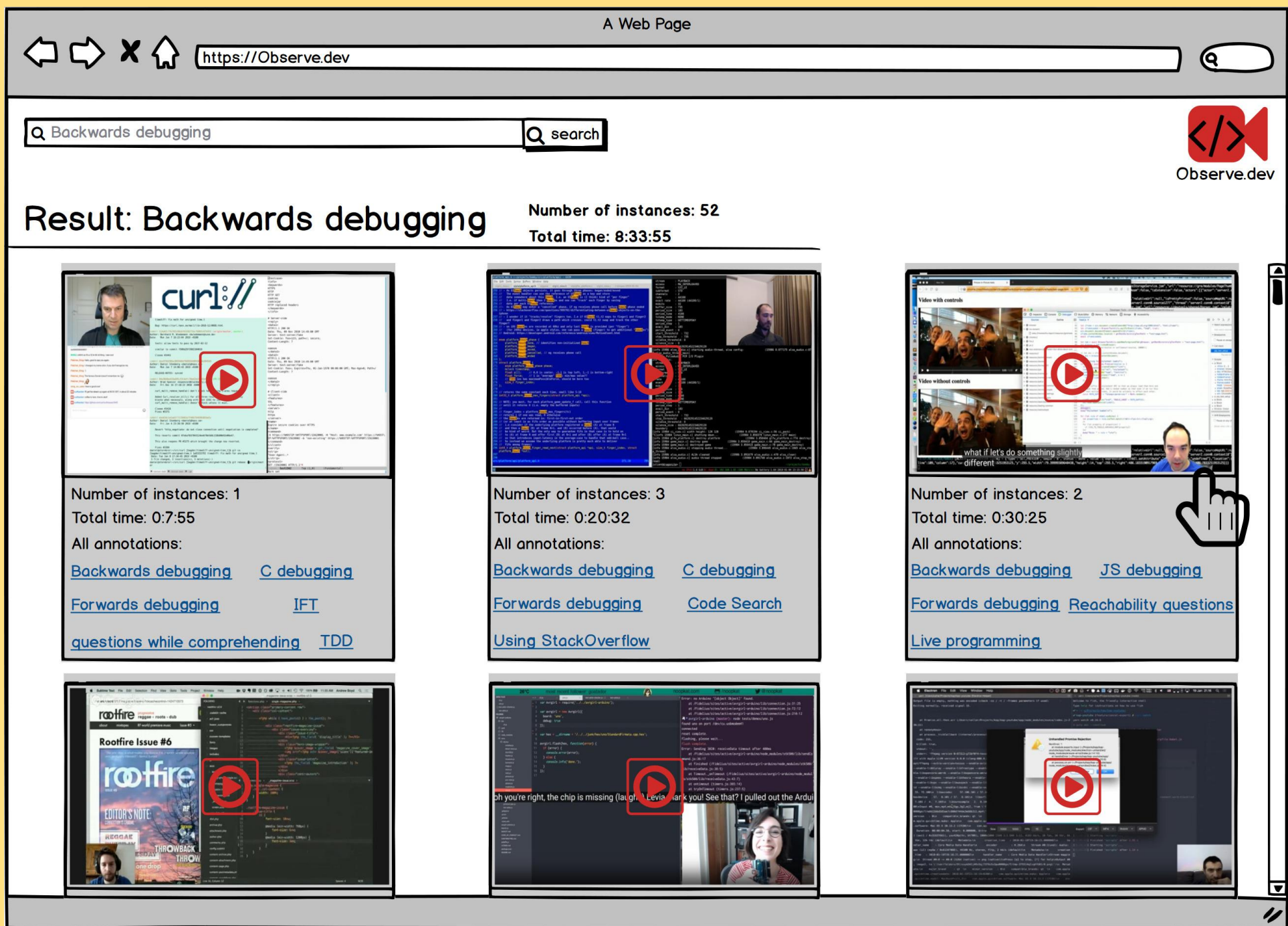


Fig 2: Users can select from a large set of annotated videos.

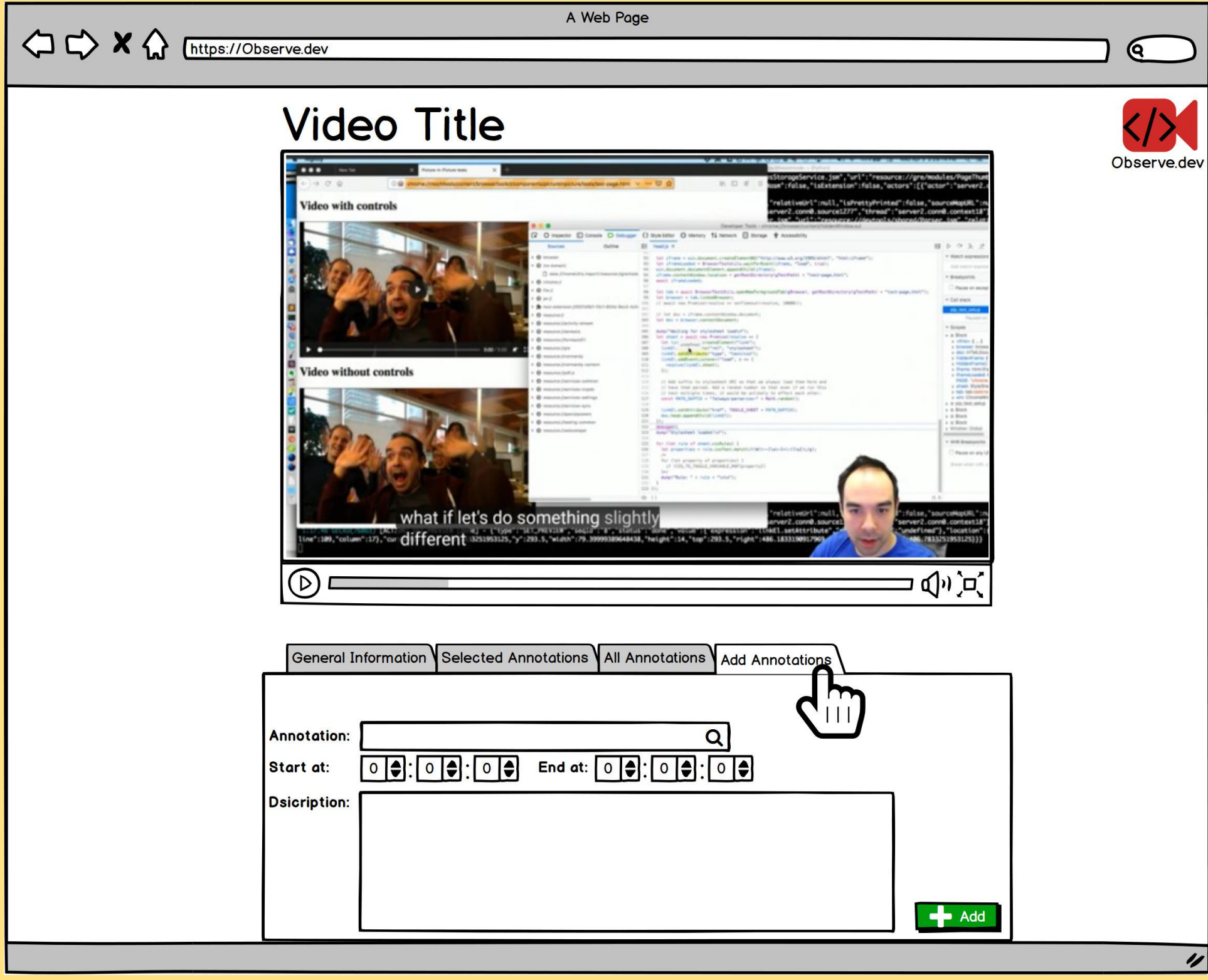


Fig 4: Users can add new annotations for existing videos.

Future Research Questions

- 1. What other contexts and examples researchers and instructors might use these videos for?
- 2. What infrastructure and workflow are required to solicit and manage contribution from the community?
- 3. How can the annotated videos effectively displayed to users?
- 4. What tools and techniques can help in maintaining and annotating these videos?
- 5. How can we design a platform that respects and ensure that privacy and wellbeing of the developers in these videos?

