

# Visualizing Code History for Rapid Exploration and Prototyping

## Problem:

**Programmers cannot easily compare different versions of code and corresponding output**

In order to manage alternatives while prototyping, programmers rely on heavyweight source control systems or resort to commenting code in and out. In both approaches navigating through and comparing differences is cumbersome.

## Motivation:

**Programmers would create better final products with the benefits of rapid prototyping and a temporary disregard for extensibility**

With a visualized code history, programmers will take more risks and explore more divergent ideas in the design space.

Challenge: we must retain multiple dimensions of data from every execution, and we must allow the user to navigate seamlessly through these histories.

## Results:

**We present an clip-based view and a fish-eye view, with an enhanced diff experience integrated with both views**

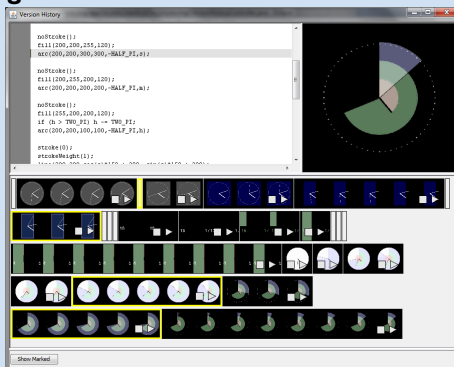


Figure 1: Clip-based View. Scrub through executions by simple mouse-over. Irrelevant versions can be hidden to reduce clutter.

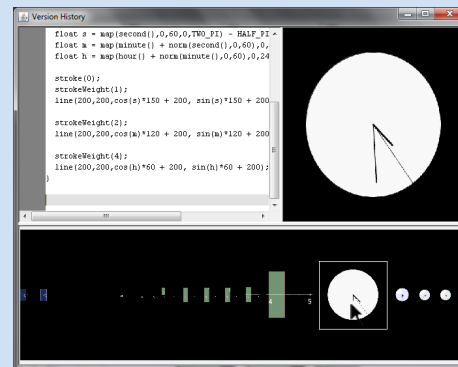


Figure 2: Fish-eye View. Fish-eye scrolling eliminates need to manually scroll. Fine-grained control is more difficult. Code stays focused on current block as you scrub through versions

## Approach:

**We based our design goals on the requirements of rapid prototyping**

- A low barrier to trying and coding new ideas
- A quick way to navigate through and compare different outputs
- The ability to examine a block of code and view its evolution between different versions
- A clutter-free editor that shows only code from the current version

## Future Work:

**We are interested in exploring how to combine versions and display only the most salient differences**

- Chunking – automatically grouping minor code changes into one larger edit
- Extracting most relevant timeframes of video output and linking that to corresponding code
- Better support of merging different versions

Abel Allison, Marcia Lee, William Choi  
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