# Non-Linear Editor for Text-Based Screencast

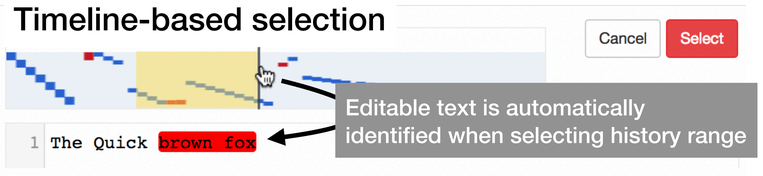

Jungkook Park pjknkda@kaist.ac.kr
Yeong Hoon Park park1799@umn.edu
Alice Oh alice.oh@kaist.edu


## Key Contributions

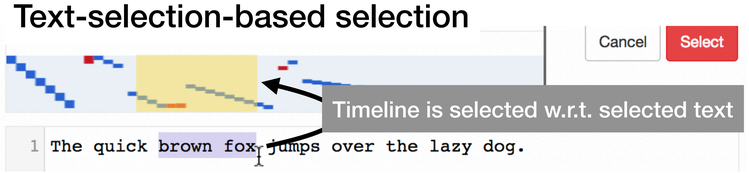
- A validation technique to evaluate whether rewriting a part of text-based screencast introduces ambiguity on the subsequent text editing history
- A substitution technique to substitute a part of text-based screencast, resulting in a new screencast
- A web-based non-linear editor for text-based screencasts with two-step selective history rewriting process

## Interface for Non-Linear Editor

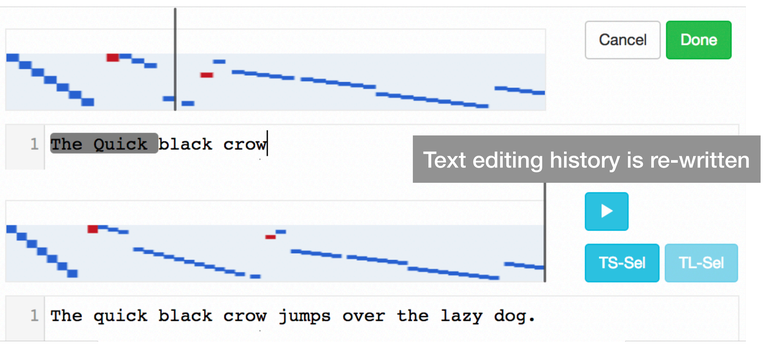
### Timeline-based selection



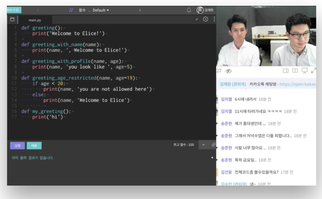

### Text-selection-based selection



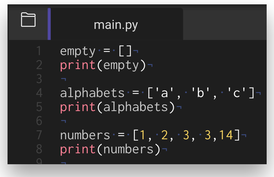

### Modifying Text Screencast




## Screencast
### as an Online Educational Tool



**Conventional video**
Graphical, view-only medium

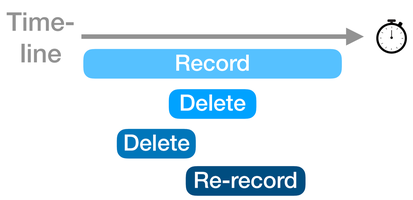



**Text-based Screencast** captures
- Insertions/deletions in a character-level
- Cursor/selection changes

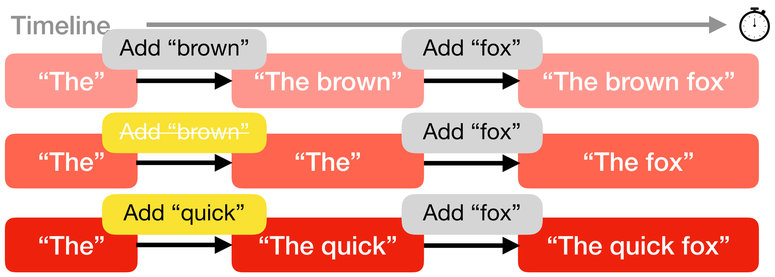
Then reconstructs the text editing history
- Allows viewers to interact with the text/code

## Selective History Rewriting

### Non-Linear Editing
A method to randomly access and selectively edit intermediate parts of a content




### Non-Linear Editing for Text Editing History
Each revision of a text editing history is dependent on all of its prior changes

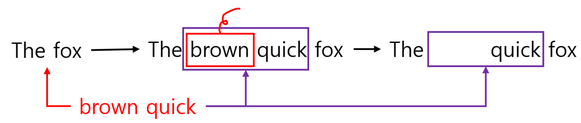



**Selective History Rewriting** enables substituting an arbitrary part of a text-based screencast while preserving overall consistency of text editing history

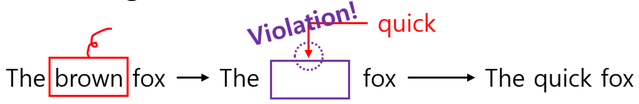
## Validation Step

**Validation Step** evaluates whether rewriting a history range introduces ambiguity on the subsequent part of the text editing history

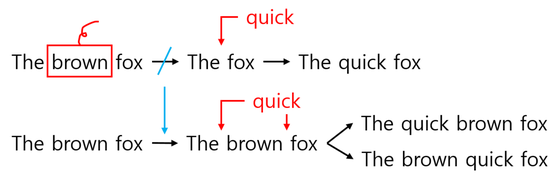
### Tracking effective area




### Checking effective area violation




### * Example of ambiguous rewriting




## Substitution Step

**Substitution Step** calculates the effect of newly substituted history and produces a new screencast by combining (1) fore part, (2) substituted part, and (3) re-calculated subsequent part