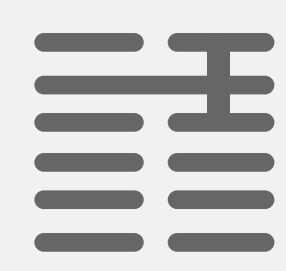


# TEASPN: Framework and Protocol for Integrated Writing Assistance Environments

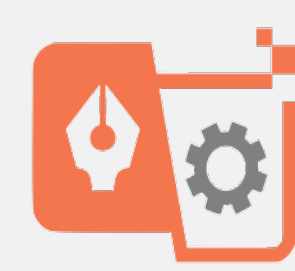
Masato Hagiwara<sup>1</sup> Takumi Ito<sup>2,3</sup> Tatsuki Kuribayashi<sup>2,3</sup> Jun Suzuki<sup>2,4</sup> Kentaro Inui<sup>2,4</sup>



<sup>1</sup>Octanove Labs LLC



<sup>2</sup>Tohoku University



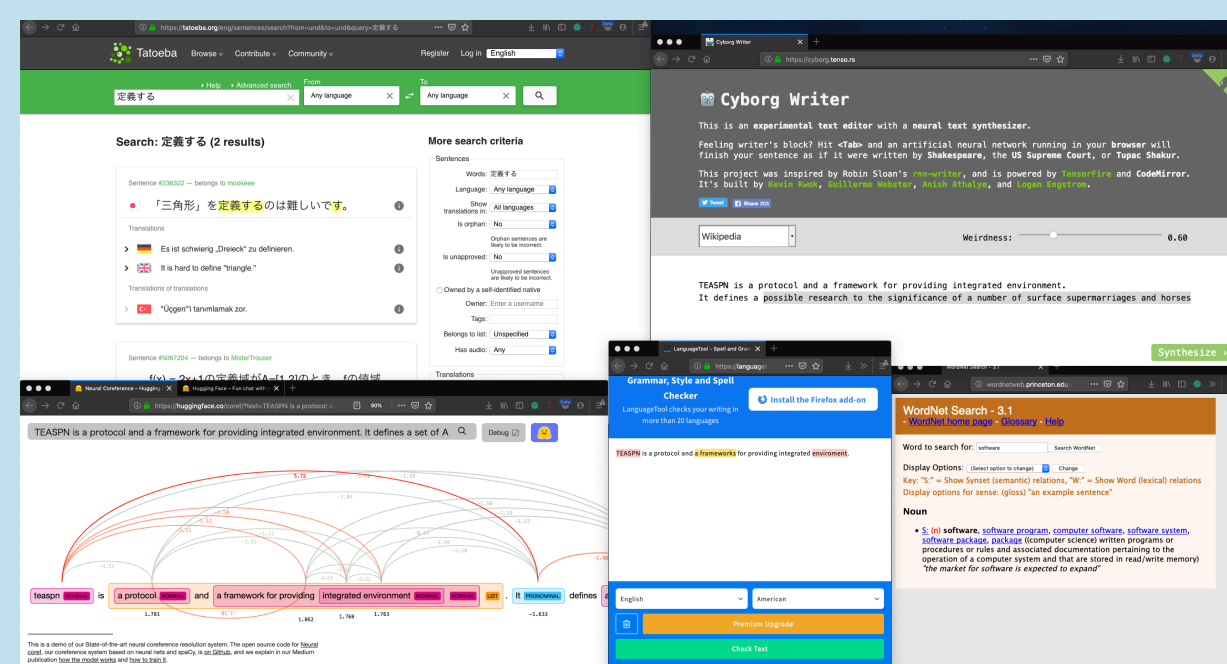
<sup>3</sup>Langsmith, Inc.



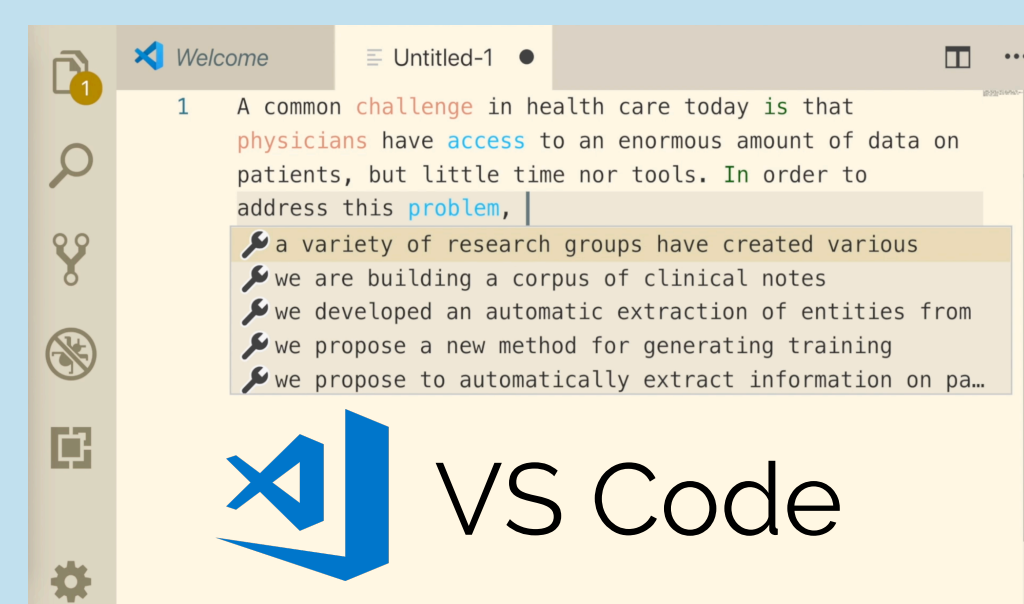
<sup>4</sup>RIKEN AIP



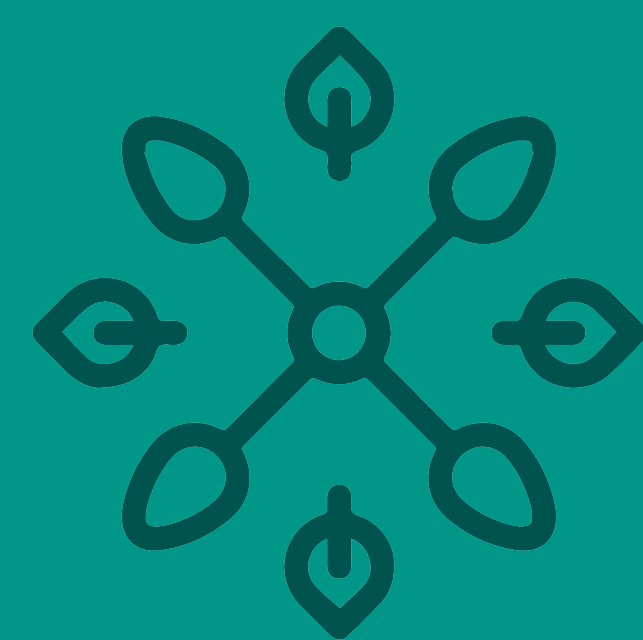
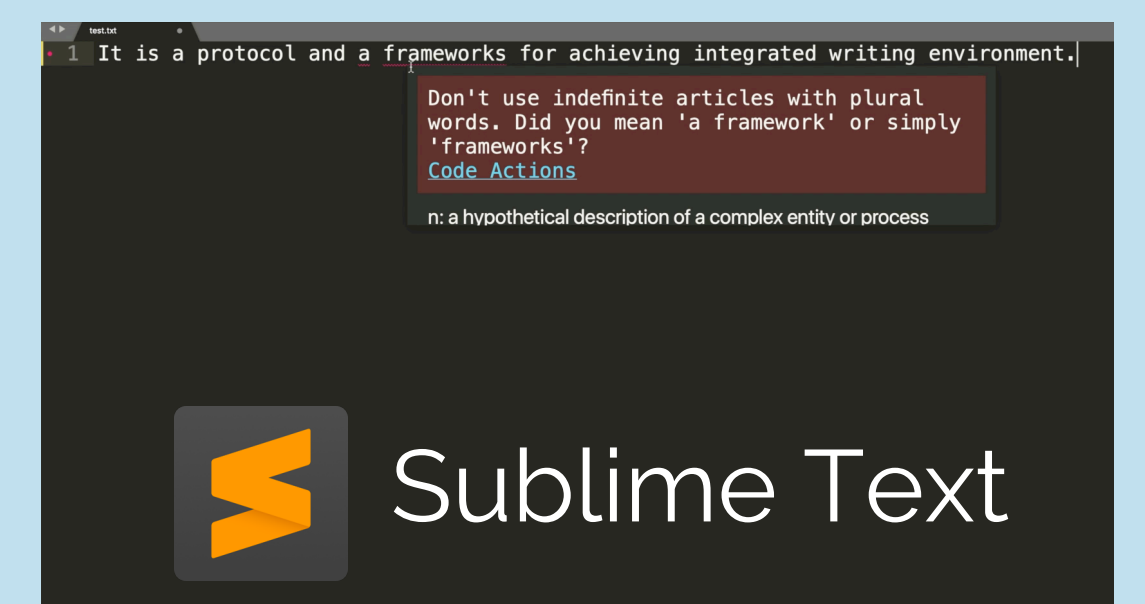
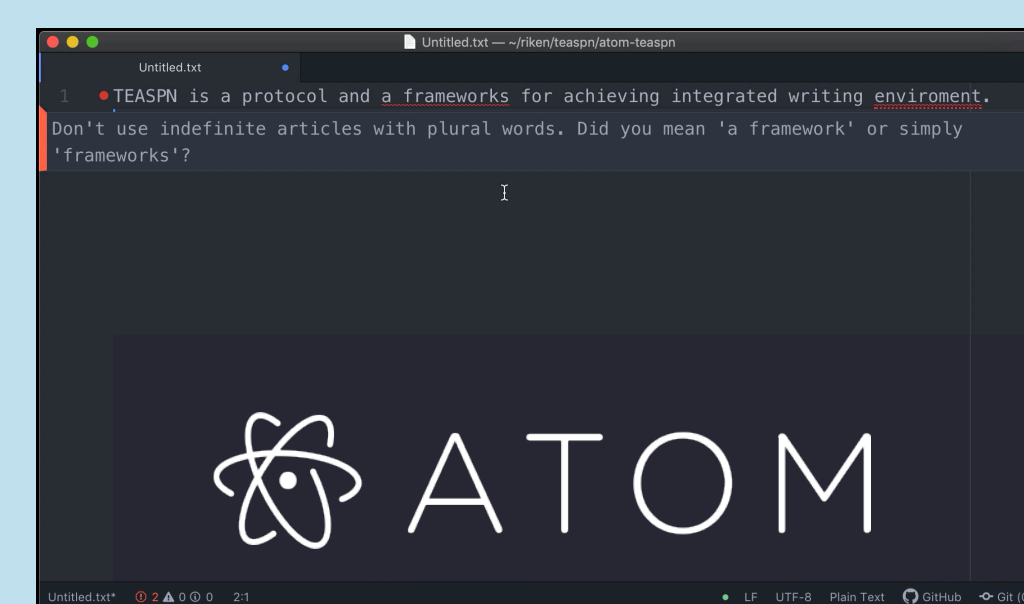
## Writing Software



Need to switch between multiple apps  
High implementation cost (N x M problem)

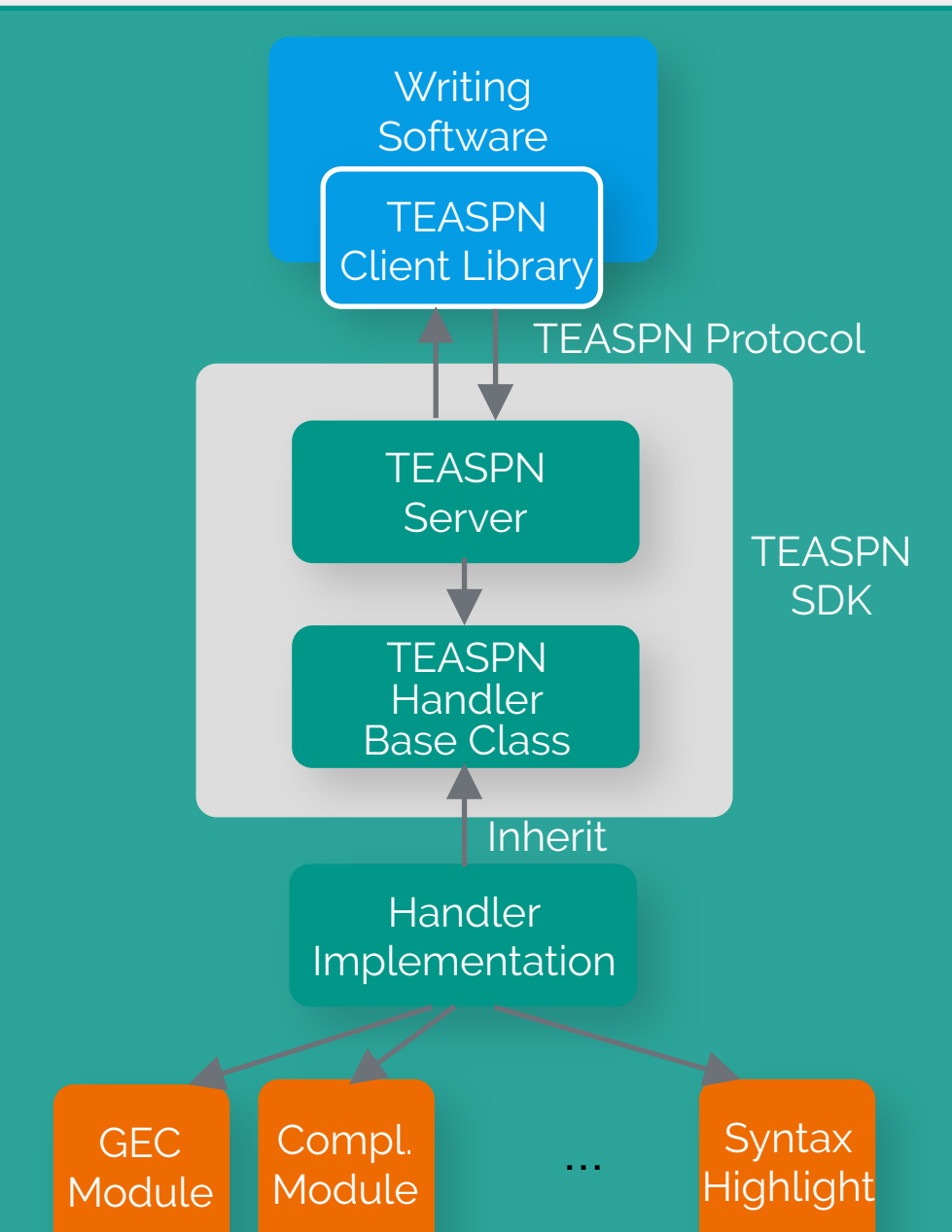


Writers can benefit from integrated writing experience provided by their favorite writing software and WATs.



## TEASPN

Developers can integrate WATs into their software by following the protocol built on Language Server Protocol (LSP)



## Writing Assistance Technologies



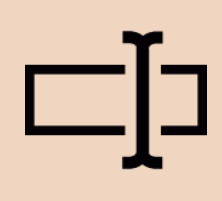
Syntax Highlighting



Grammatical Error Detection

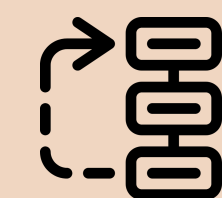


Grammatical Error Correction

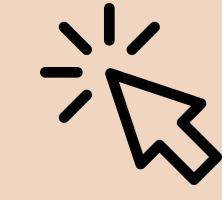


Completion

**Aa** Text Rewriting



Jump



Hover



Search

```
@overrides
def get_completion_list(
    self, position: Position) -> CompletionList:
    """Handle autocomplete."""
    offset = self._position_to_offset(position)
    context = self._text[offset:]

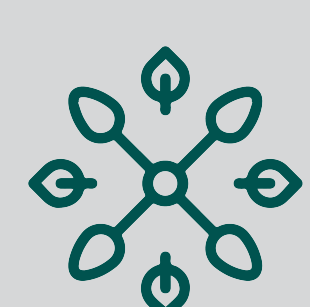
    items = []
    # ... add completion items ...
    return CompletionList(isIncomplete=True, items=items)
```

Code snippet for computing completion

NLP researchers can integrate their research models into major writing software

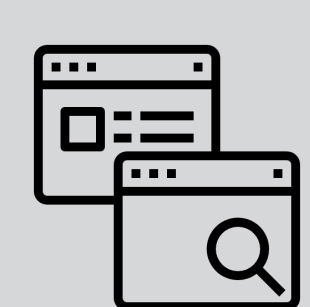


## Experiments



TEASPN

VS



Baseline

**42%**

said TEASPN helps them write better text

**83%**

said TEASPN provides better writing experience

**30%**

perplexity improvement

### Join the effort!

Support wider writing software  
More WAT implementations



<https://www.teaspn.org/>