



# COLLABORATIVE WRITING ON GITHUB: A Case Study of A Book Project

Ei Pa Pa Pe-Than, Laura Dabbish, James D. Herbsleb

## Background

GitHub, a software code-hosting environment, is increasingly becoming a digital workspace for the production of collaborative **non-software digital artifacts**.

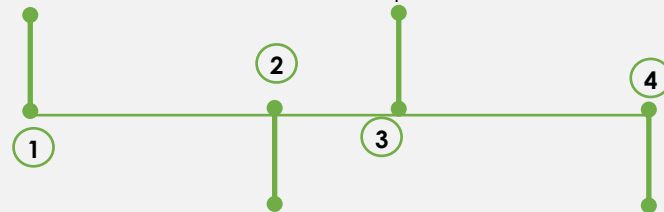
GitHub offers unique features that are different from traditional collaborative writing tools such as wikis:

- Fork**—copy a project to one's local environment to work independently
- Pull request**—submit contributions to integrate one's work with others
- Issues**—discuss general or specific parts of the main article

How are GitHub's feature used for collaboration in non-software artifacts?

## Methods

1. Identify GitHub's non-software projects with keyword search and literature review
2. Conduct interviews with central and peripheral collaborators of each project
3. Identify and collective project's archives such as blog posts and GitHub's activity logs
4. Analyze interview data and archives using open coding procedures

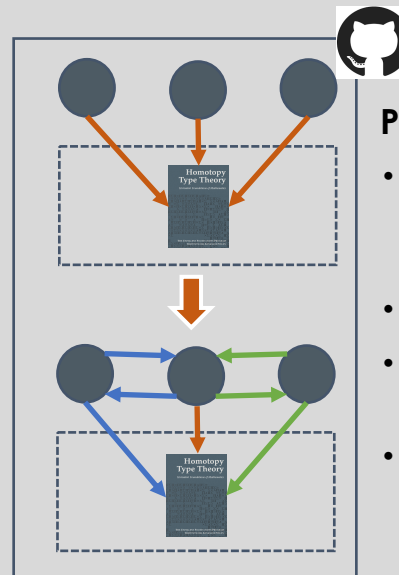
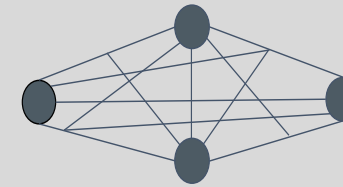


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## Interview Findings

### Phase 1: Group collaboration

- The project team performed tightly-coupled work such as discussions about content to be included and organization of the book
- A wiki was used to record ideas and mailing list for dissemination of information

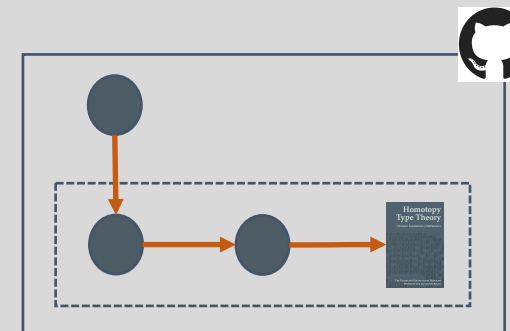


### Phase 2: Independent coordination

- The team members worked in isolation for loosely-coupled tasks or those with pooled dependencies
- "Push method" was used
- "Issues" were used as a project management
- "Social locking" was used to manage reciprocal dependencies

### Phase 3. Sequential coordination

- "Pull-based method" was used
- Every change was reviewed and merged by a pair of collaborators
- "Issues" were instrumental for communication and general project management



## A Case Study: HoTT Book

A textbook on Homotopy Type Theory

Four interviews with core project team members were conducted. Each lasted between 44-85 minutes.

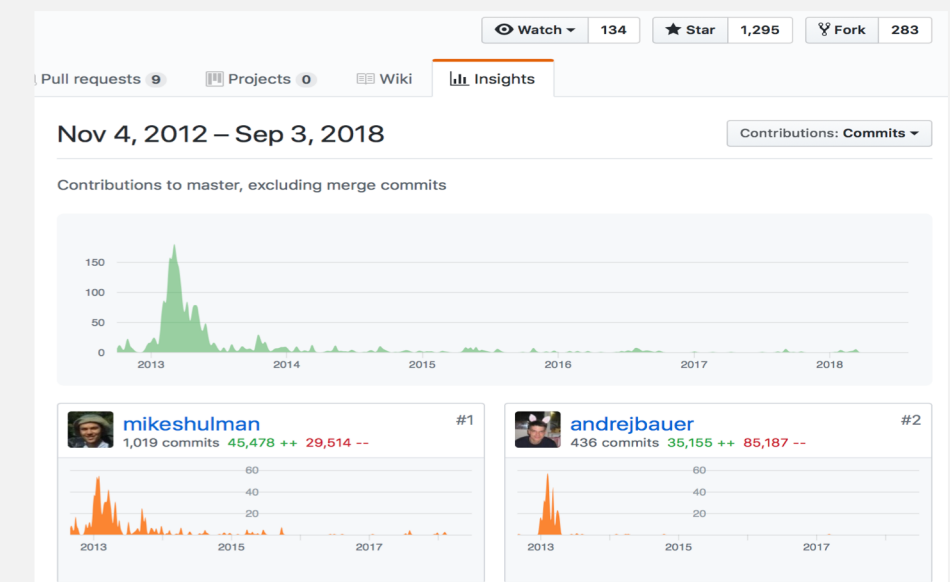


Figure 1. HoTT Book's GitHub contributor page (<https://github.com/HoTT/book/>)

GitHub's features support well both tightly- and loosely-coupled work.

Socially accepted conventions—social locks and mandatory review—are needed in later collaboration phases.

Open and transparent digital workspace such as GitHub can facilitate the co-creation of a wide variety of digital artifacts.