Repograms

Brief lecture and
in-class research study

A tool to analyze and juxtapose software project history

Software Practices Lab
Computer Science
University of British Columbia
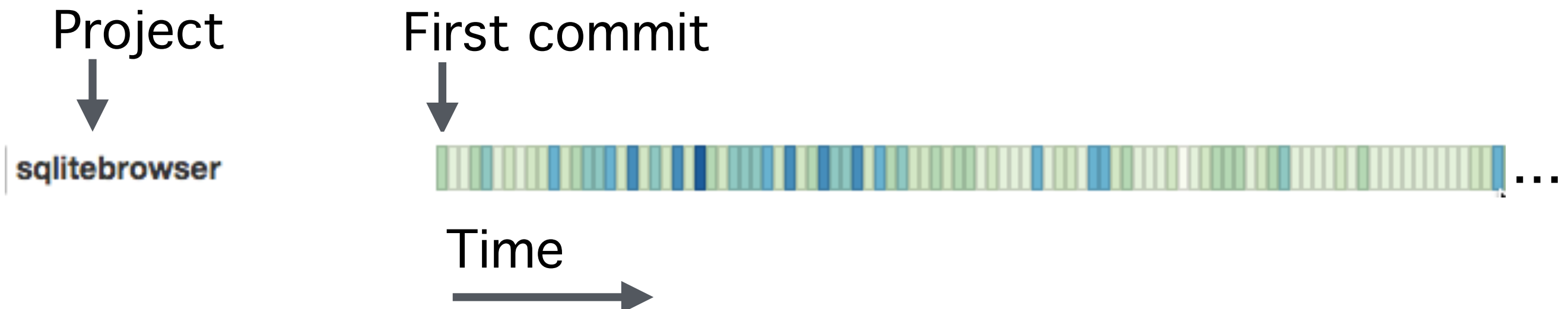
Computer Science
Saarland University

Another tool to visualize repositories?

- There are numerous tool to visualize repositories

- None provide a flexible interface to

  - Juxtapose/compare multiple repositories

  - Unify multiple metrics of a repository into one view

  - Simple and easy to use

- Our targeted population: SE researchers

  - Need to select evaluation targets for studies
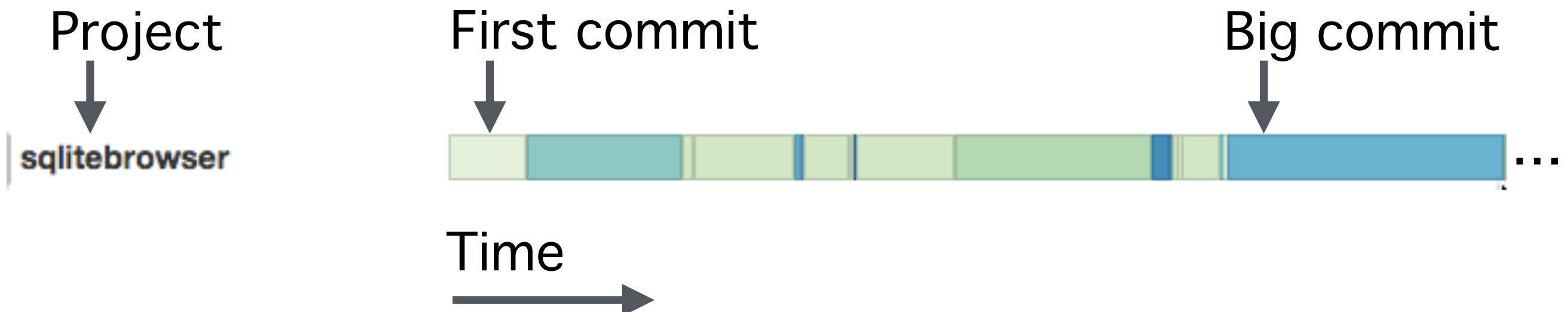
  - Need a simple and efficient project comparison tool

Repograms: a repository is a sequence of blocks

- A block represents a commit

  - Block's length is either a fixed constant or encodes lines of codes changed

  - A block's colour represents a "metric" value

  - A metric is a function: $m(commit) \rightarrow number$
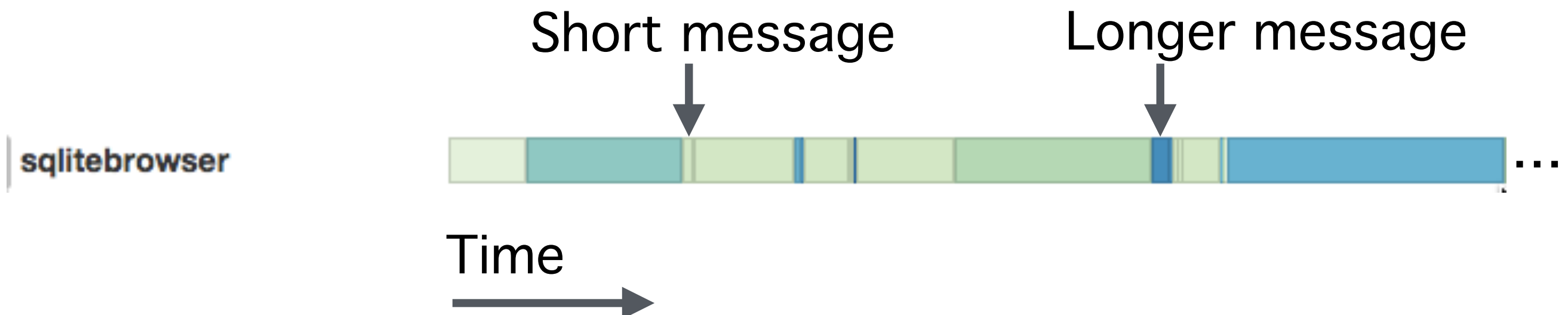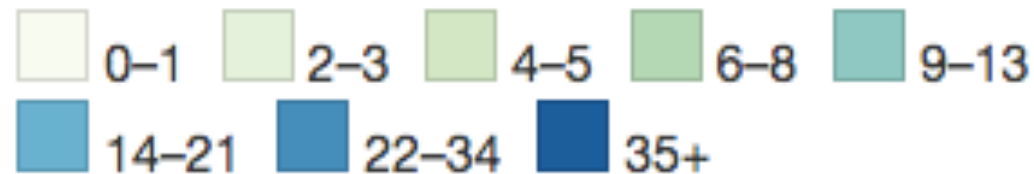
- Example (block length = fixed constant):

Project

First commit

sqlitebrowser

...

Time

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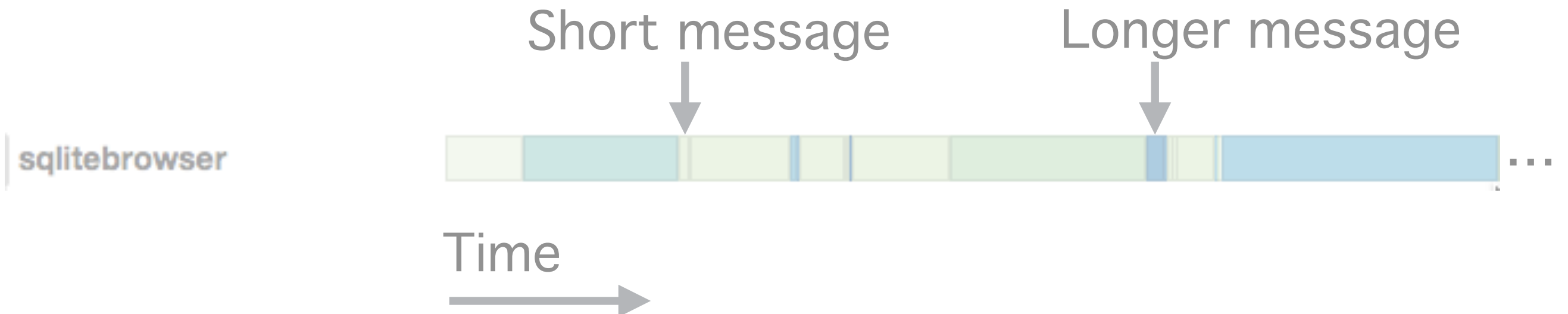
- Example (block length = lines of code changed):

Project → sqlitebrowser

First commit ↓

Big commit ↓

...

Time →

Repograms: a repository is a sequence of blocks

- A block represents a commit

  - Block's length is either fixed constant or encodes lines of codes changed

  - A block's colour represents a "metric" value

    - Example metric: "number of words in a commit message"
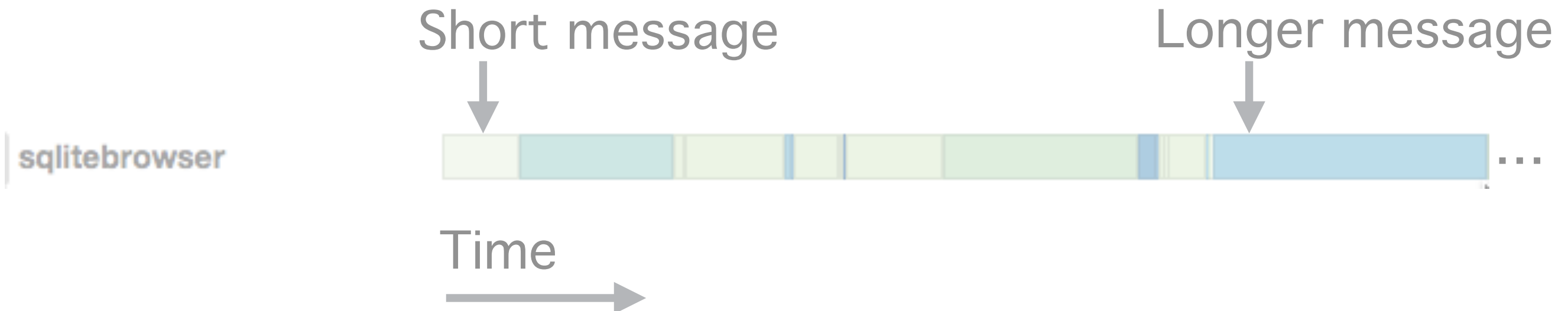
0–1	2–3	4–5	6–8	9–13
14–21	22–34	35+

Short message   Longer message

sqlitebrowser

Time

DEMO!

- Basic tool features

Short message   Longer message

sqlitebrowser

Time

Evaluating repograms

- ## User-study

  - Study design: survey + tool use (you'll experience this firsthand!)

  - Human subjects review

Short message

Longer message

sqlitebrowser

Time

Human subjects review (REB)

- REB: research ethics board

  - Independent body

  - Reviews research protocol + study materials

  - Goal is to maximize human safety: protect human subjects from physical or psychological harm

  - Risk-benefit analysis

Repograms REB application

- PDFs

In-class research study

- *You* are the subjects
- Voluntary (you don't have to participate)
- Can do the study at home (anytime this week)
- Enter raffle for 5 x $25 gift cards to UBC Bookstore

Help us evaluate **Repograms** !

Browser options: Chrome (best), Firefox, or Safari (worst)

Does **not** work in IE

Avoid tablets and phones

Begin study by browsing to:

http://repograms.net

Questions? Raise your hand.