Code Review During Research: A Community Effort Towards Guidelines

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on behalf of the RCRC

Code reviews at the time of publication

- What about code quality?

Code review *during research*

Code review benefits researchers themselves

- Learning and knowledge transfer
  - Dissemination of good practices.
  - Continuous peer learning.
- Collaboration
  - Group awareness, cohesion and trust
  - Makes it easier for people to join a team... and leave it.

Code review is common software practice...

... in the software industry and open source communities.

Code review is very rare in academia and *most* research domains.

- Lack of awareness
- Lack of guidance
- Lack of incentives
- Lack of confidence

Research Code Review Community Group 2 (Code Review During Research)

Guidelines as a website

<iframe src="https://dev-review.readthedocs.io/en/latest/" width="100%" height="85%"></iframe>

Code review guidelines I

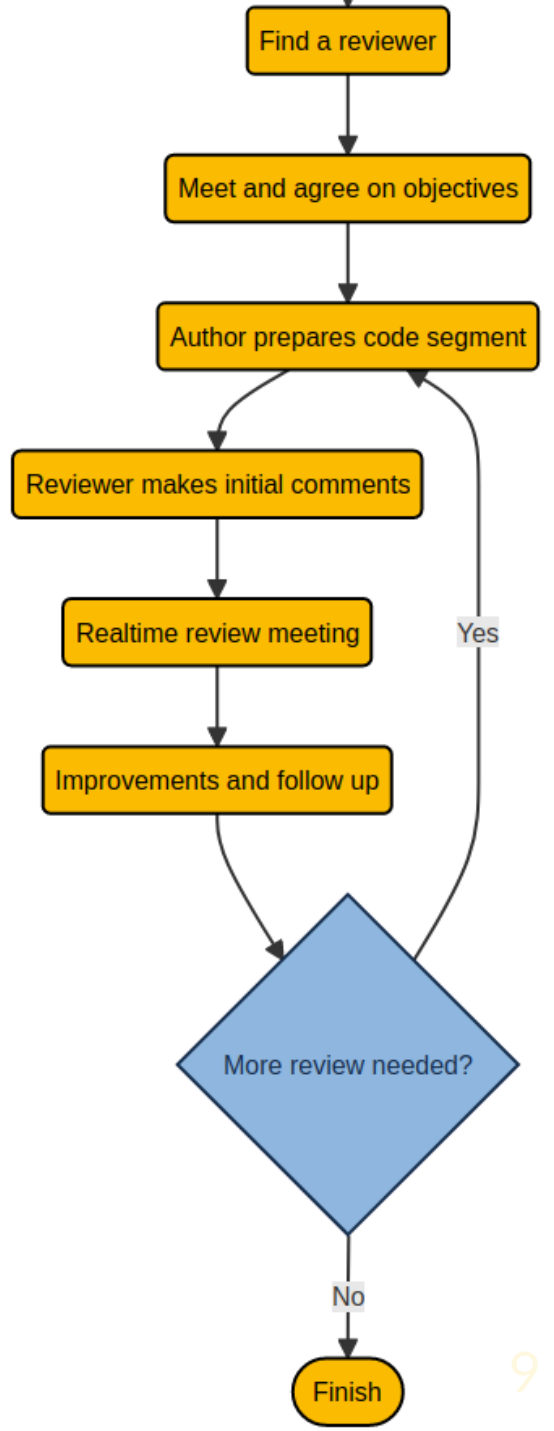
Principles

- Suited for "lone coder"
- Short, and predictable time commitment
- Informal and low stakes
- Accessible to beginner programmers

Code review guidelines II

The four steps:

1. Find a reviewer
2. Meet and agree on objectives
3. Perform code review
4. Finalise



Find a Reviewer

There is no code review without a reviewer or reviewers. The good news is, almost any researcher who codes is a good candidate for being one.

Potential reviewers are not far: in your own research group, others you collaborate with, or your local Research Software Engineering group. They can also be found in communities outside your institution or specific research domain.

Meet and Agree Objectives

A code review can improve code in a lot of different ways, but trying to do everything at once is rarely effective. Make it clear to all people involved why they are are participating.

Key questions to collectively answer are:

- What is the author expecting from the review?
- What should the review enable? Better readability? Knowledge transfer? Better performance?
- What part of the code should we look at?

Perform the Review

5 steps:

1. Code author communicates the code and its context to reviewer(s) in advance.
2. Reviewer(s) review code in light of objectives and areas of focus, agreed upon during the "Meet and Agree Objectives"
3. Author and reviewer(s) meet in real time and discuss the code.
4. Code author implements changes.
5. Rinse and repeat.

A Note on Communication

Although the subject is technical, everyone involved must remember that they are interacting with humans. Empathy, humbleness and non-confrontational communication are key to a successful code review.

Questions?

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