Software engineering at the speed of light: how developers stay current using Twitter

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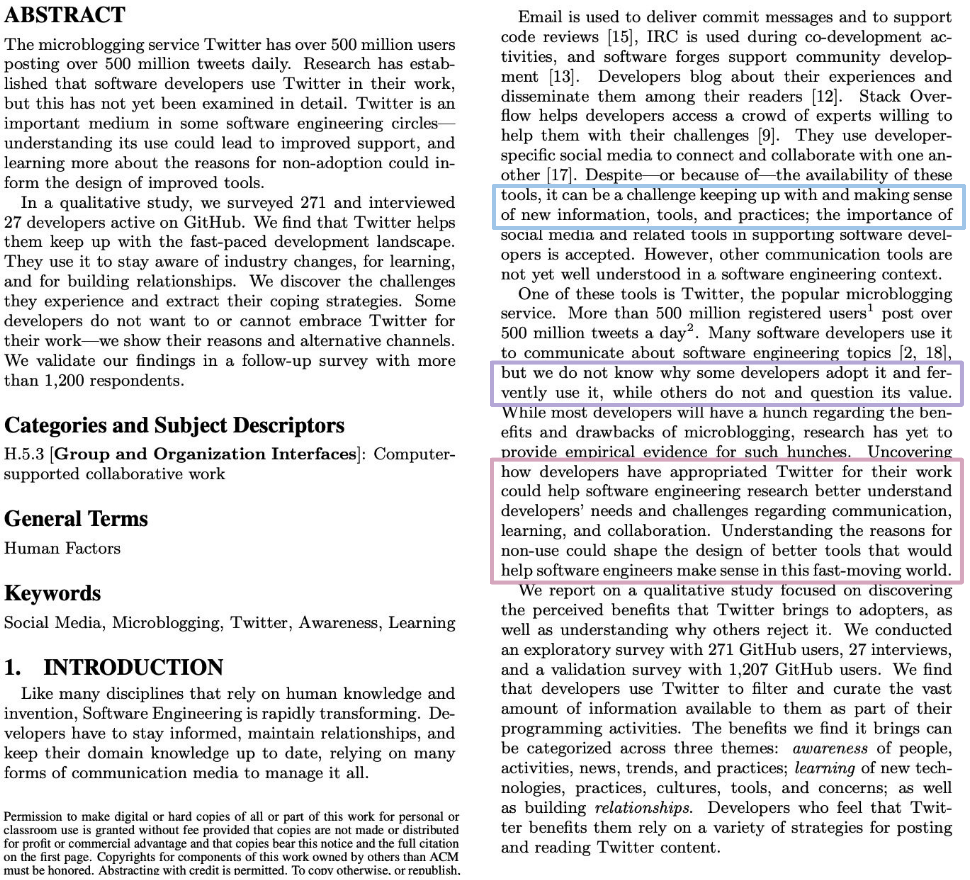
Presented by: Andrea Miller



ABSTRACT

The microblogging service Twitter has over 500 million users posting over 500 million tweets daily. Research has established that software developers use Twitter in their work, but this has not yet been examined in detail. Twitter is an important medium in some software engineering circles—understanding its use could lead to improved support, and learning more about the reasons for non-adoption could inform the design of improved tools.

In a qualitative study, we surveyed 271 and interviewed 27 developers active on GitHub. We find that Twitter helps them keep up with the fast-paced development landscape. They use it to stay aware of industry changes, for learning, and for building relationships. We discover the challenges they experience and extract their coping strategies. Some developers do not want to or cannot embrace Twitter for their work—we show their reasons and alternative channels. We validate our findings in a follow-up survey with more than 1,200 respondents.

Categories and Subject Descriptors

H.5.3 [**Group and Organization Interfaces**]: Computer-supported collaborative work

General Terms

Human Factors

Keywords

Social Media, Microblogging, Twitter, Awareness, Learning

1. INTRODUCTION

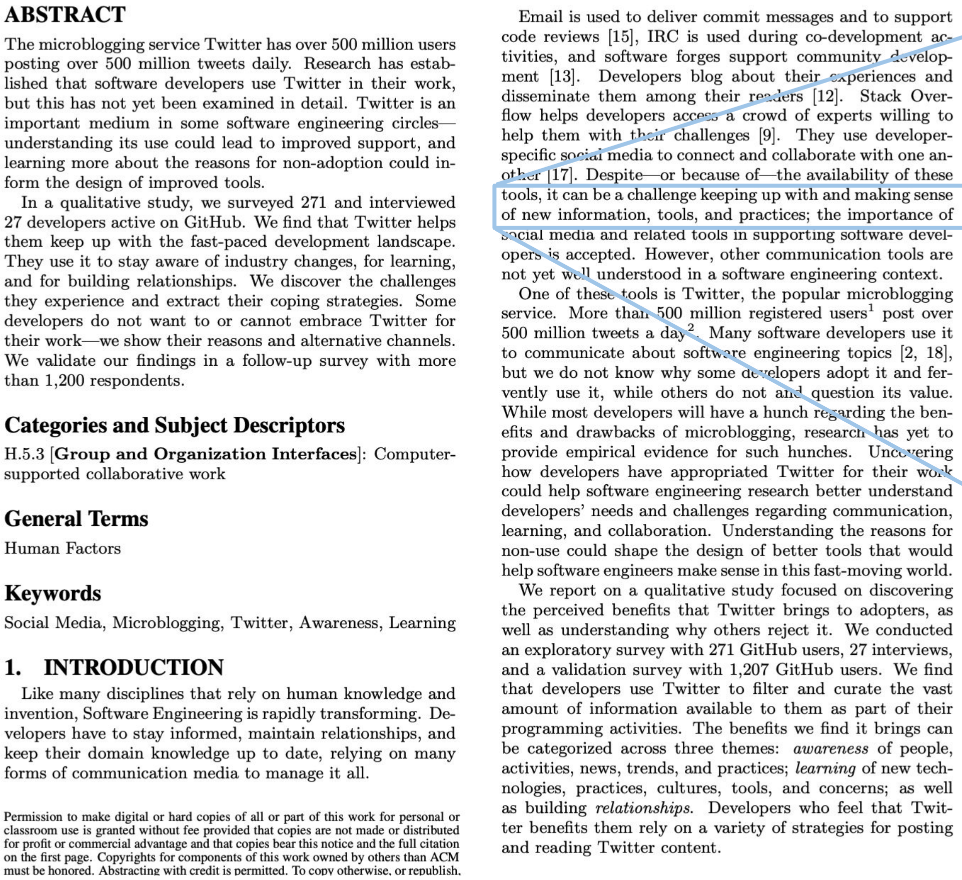
Like many disciplines that rely on human knowledge and invention, Software Engineering is rapidly transforming. Developers have to stay informed, maintain relationships, and keep their domain knowledge up to date, relying on many forms of communication media to manage it all.

Email is used to deliver commit messages and to support code reviews [15], IRC is used during co-development activities, and software forges support community development [13]. Developers blog about their experiences and disseminate them among their readers [12]. Stack Overflow helps developers access a crowd of experts willing to help them with their challenges [9]. They use developer-specific social media to connect and collaborate with one another [17]. Despite—or because of—the availability of these tools, it can be a challenge keeping up with and making sense of new information, tools, and practices; the importance of social media and related tools in supporting software developers is accepted. However, other communication tools are not yet well understood in a software engineering context.

One of these tools is Twitter, the popular microblogging service. More than 500 million registered users[1] post over 500 million tweets a day[2]. Many software developers use it to communicate about software engineering topics [2, 18], but we do not know why some developers adopt it and fervently use it, while others do not and question its value. While most developers will have a hunch regarding the benefits and drawbacks of microblogging, research has yet to provide empirical evidence for such hunches. Uncovering how developers have appropriated Twitter for their work could help software engineering research better understand developers' needs and challenges regarding communication, learning, and collaboration. Understanding the reasons for non-use could shape the design of better tools that would help software engineers make sense in this fast-moving world.

We report on a qualitative study focused on discovering the perceived benefits that Twitter brings to adopters, as well as understanding why others reject it. We conducted an exploratory survey with 271 GitHub users, 27 interviews, and a validation survey with 1,207 GitHub users. We find that developers use Twitter to filter and curate the vast amount of information available to them as part of their programming activities. The benefits we find it brings can be categorized across three themes: *awareness* of people, activities, news, trends, and practices; *learning* of new technologies, practices, cultures, tools, and concerns; as well as building *relationships*. Developers who feel that Twitter benefits them rely on a variety of strategies for posting and reading Twitter content.

The problem, gap, and hook are all found within the first three paragraphs of the paper.



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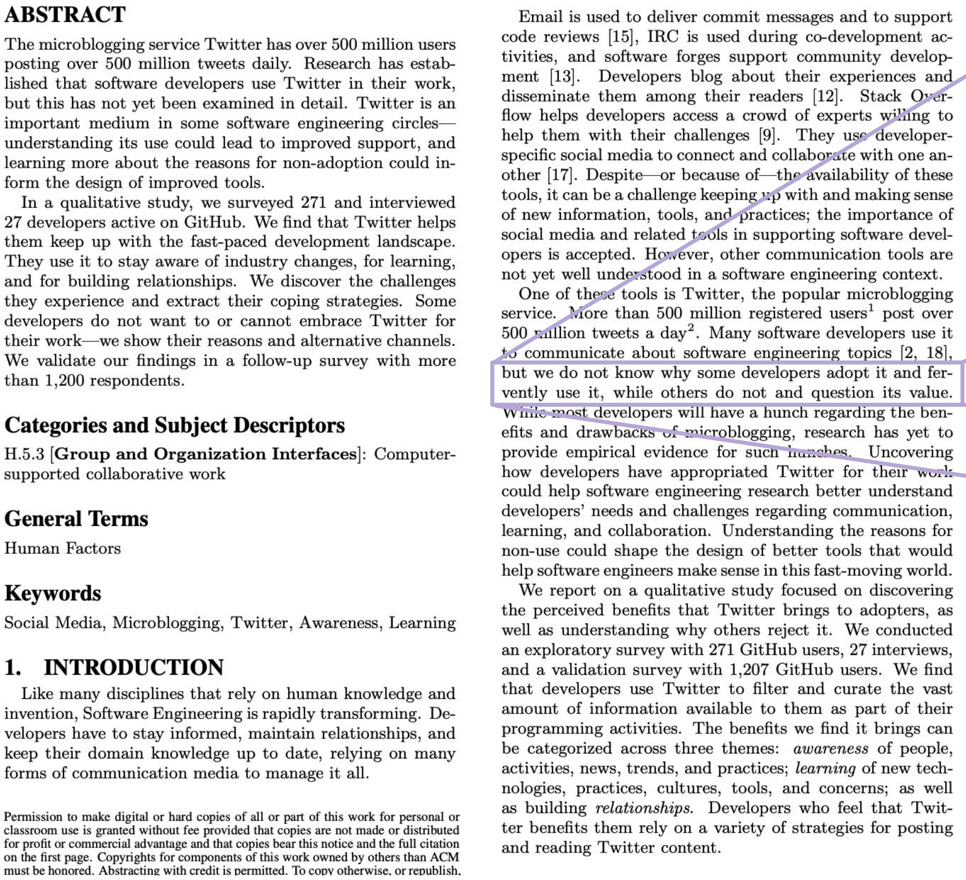
Developers struggle to keep up with the fast-paced information landscape that is software.



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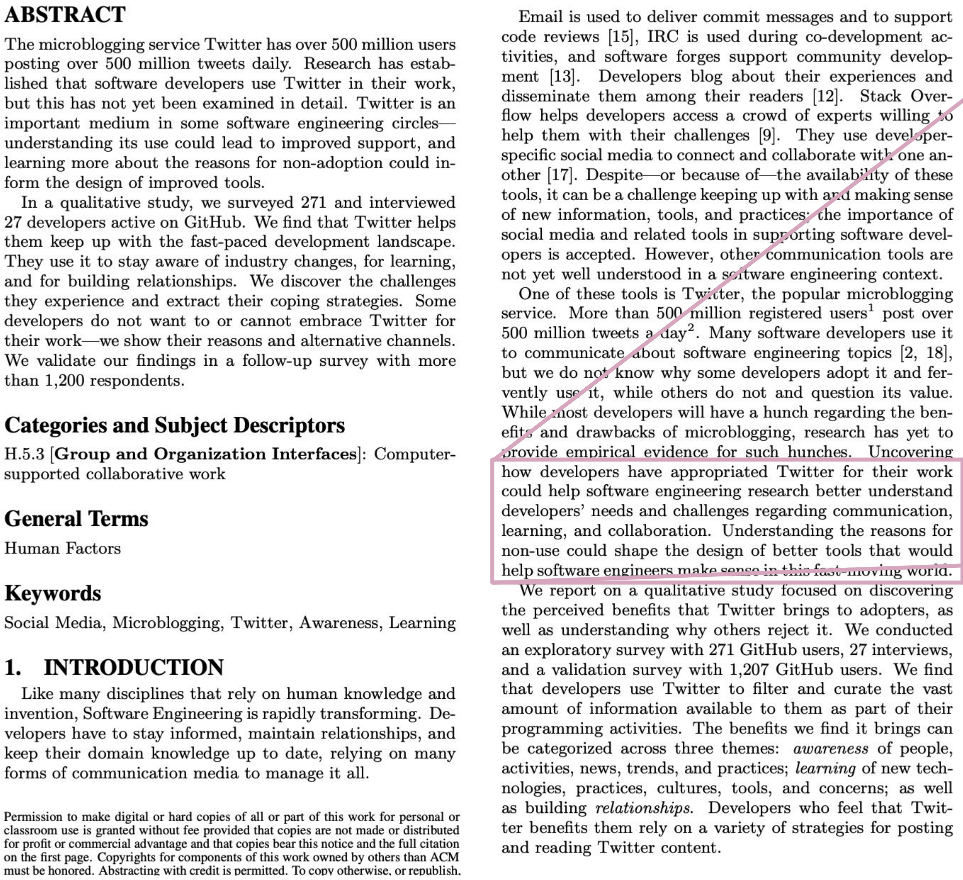
We don't know why some developers adopt Twitter and others don't.

Email	-	Commits Code reviews
IRC	-	co-development
GitHub	-	Community



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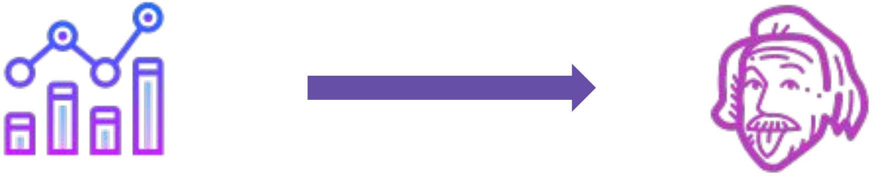
Understanding Twitter adoption can inform better developer tool design.

>500M users
>500M tweets/day

The research questions asked are all exploratory questions.

1. How does Twitter increase software developer awareness of people, trends, and practices?
2. How does Twitter help software developers extend their software knowledge?
3. How does Twitter nurture relationships between software developers?
4. What are the challenges faced by software developers using Twitter, and how do they cope with them?
5. What are the reasons for non-adoption of Twitter by software developers?

Researchers conducted a grounded theory-based study.



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Exploratory Survey

Semi-structured Interviews

Data Review

Validation Survey

The initial survey responses were used as a guide for the semi-structured interviews.

Exploratory survey of open-ended questions was sent to 1,160 GitHub users

→ received 271 responses

- 82% professional developers
- 59% use Twitter at least once per week
- Account ages were 4 months to 6 years 11 months
- Number of tweets per account 0 to 41,079

Looking for developers who DO and DO NOT use Twitter

27 follow-up interviews were conducted from the group who had responded to the initial survey.

- 97 participants volunteered for follow-up interviews

  → received 271 responses

  ○ 93% professional developers
  ○ 81% use twitter at least once per week
  ○ 26 had Twitter accounts (age 1 year 7 months to 6 years 2 months)
  ○ Number of tweets per account: 4 to 29,644

Interviews:

- Semi-structured
- Over Skype, recorded, and transcribed
- Average length of 38 minutes

Researchers confirmed findings with a validation survey.

Initial survey + Interviews → Theories to answer research questions

- Memos
- Axial coding

Validation survey to confirm theories:

- >1,200 responses
  - 82% professional software developers
  - 67% use Twitter at least once per week
  - 677 respondents indicated they use Twitter for their development-related work

The results were kind of what you’d expect if you’re familiar with social media.

Benefits of Twitter:

- Serendipitous learning
- Following people/projects of interest
- Group think on questions asked

Challenges of Twitter

- Content volume vs consumption
- Maintaining relevant network

Non-adoption:

- Too much noise
- 140-character constraint
- Lack of conversation support
- No understanding of any benefits