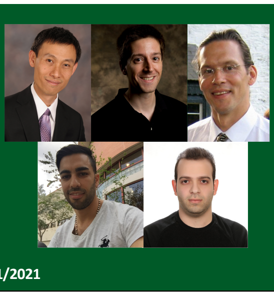
Ethnographic Study of Secure Software Development Processes in a Real Company



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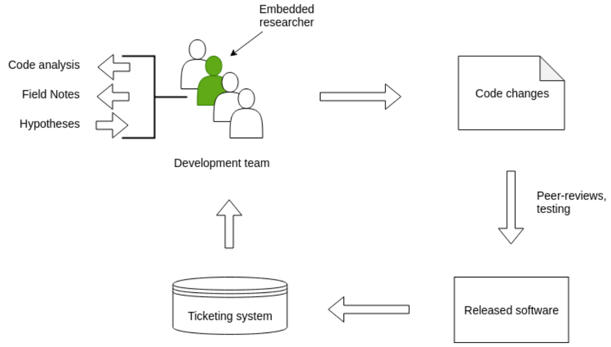
We study the activities of real software development teams through anthropological fieldwork over long periods while embedded in cooperating companies. By considering large problems, working context, long-term social dynamics, incentives, and other real-world concerns, we uncover deeper, less obvious problems and opportunities for improvement.

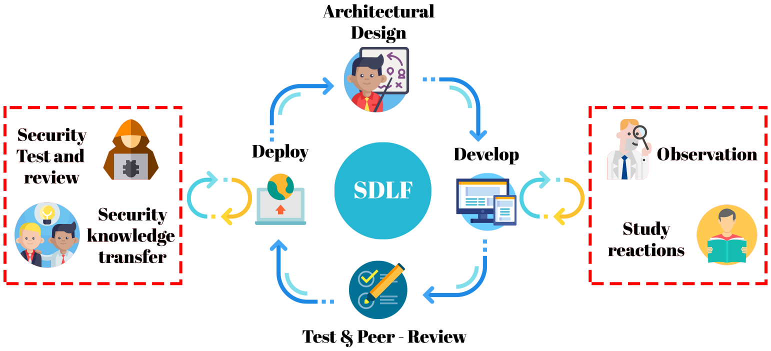


Methodology

- Researchers are embedded in real software development companies
- Researchers play the role of software developers, security analysts, and observers
- Anthropologists call this "*participant observation*"
- Theories are developed based on qualitative analysis of field notes

Motivation:

- Security vulnerabilities are often discovered too late
- Security-related bugs found by developers of commercial software are often not well-documented
- Controlled studies sometimes lack contextual information about how developers solve real-world problems in their work environments



Findings

- Secure software development practices are not standardized within small organizations
- Management often values developers' productivity over their ability to build secure software
- Developers are not trained in security

"Rationales" found

- It is unlikely that attackers will discover and exploit bugs that have existed in applications for many years.
- Fixing all security issues is too costly; focus should be on innovation.

Hypotheses

- Developers don't think as attackers
- More incentives are needed to promote better secure-software development practices

Goal

We intend to uncover generalizable patterns that (dis) incentivize security in software development, and experiment with interventions to induce positive changes of behavior.

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