An Ethnographic Understanding of Software (In)Security and a Co-Creation Model to Improve Secure Software Development

Hernan Palombo*, Armin Ziaie Tabari*, Daniel Lende, Jay Ligatti, Xinming Ou
University of South Florida, Tampa, FL, USA

* Both are first authors

This research is supported by the U.S. National Science Foundation under Grant No. 1801633 and 1801545.
Are Developers to Blame?

“Rather than blaming developers, our analysis shows that the problem extends up in company hierarchies.”

“Our work highlights the need to look beyond the individual and take a holistic approach to investigate organizational issues influencing software security.”

Security in the software development life cycle, SOUPS 2018

Think secure from the beginning: A survey with software developers, CHI 2019

Hala Assal    Sonia Chiasson
Do the Research as an Anthropologist

• Studying the problem **within the context** of where the process happens

• Studying developers in their “native habitat”

*From the Native's Point of View: On the Nature of Anthropological Understanding*, Clifford Geertz, *Bulletin of the American Academy of Arts and Sciences*
Research Methods

Data analysis through coding the fieldnotes

Regular discussion with a larger research team

Two embedded researchers

Participant Observation

Security knowledge

Co-creating interventions
A Tale of Two Stories

First researcher spent one year.

Second researcher spent 6 months.

One and a half years’ data in total

The researchers ...

- performed the same tasks as a regular developer.
- uncovered several vulnerabilities in the company’s product.
- provided advices on how to fix them.

* Icon made by Freepik from www.flaticon.com
Main Findings

• Security researchers need to understand the competing business demands under which developers work

• Security can be integrated into software development through a co-creation model

• Co-creation is more effective when it happens “in the moment,” and when security experts understand the competing demands the software development team faces in a business environment
Thank You
For Your Attention

Hernan Palombo  hpalombo@usf.edu
Armin Ziaie Tabari  aziaietabari@usf.edu
Daniel Lende  dlende@usf.edu
Jay Ligatti  ligatti@usf.edu
Xinming Ou  xou@usf.edu