FAIR Enough? Assessing Open Science Practices on a Top-Tier Security & Privacy Conference

Tiago Heinrich[1]
Sebastian Giessler[2]
[1]Max Planck Institute for Informatics
[2]University of Tübingen

David Klein[3]
Alexandra Dirksen[4]
[3]Max Planck Institute for Security and Privacy
[4]University of Twente

May 21, 2026

Introduction

- Security and Privacy (S&P) are growing research fields
- Many novel contributions rely on artifacts such as programs or source code and data sets
- Science should foster reproducing the author's work to validate their contributions
- To effectively reproduce a paper's contribution, researchers require access to the original artifacts
- Fair comparison is only possible if artifacts are available and usable

Contribution

- We conduct an exploratory study by examining publications from one top-tier venue in the domain of Privacy and Security
- We introduce the concepts of Open Science (OS) and the FAIR Principles
- We then introduce a methodology used to examine papers published at S&P 2024

Open Science (OS)

- Aims to ensure the free availability and usability
- Foster the dissemination and reuse of research components, i.e., datasets, methods, and artifacts
- Enable critical feedback beyond opaque peer review mechanisms

FAIR Principles

- FAIR stands for *Findability*, *Accessibility*, *Interoperability*, and *Reusability* of digital resources
- Already required by the European Commission's European Research Council
  - **F**indable: practices for making digital resources findable
  - **A**ccessible: describes the open accessibility of research components
  - **I**nteroperable: describes the allowance of data exchange and reuse
  - **R**eusable: deals with licences and access restrictions for research components

FAIR Principles

- FAIR stands for *Findability*, *Accessibility*, *Interoperability*, and *Reusability* of digital resources
- Already required by the European Commission's European Research Council
  - **F**indable: practices for making digital resources findable
  - **A**ccessible: describes the open accessibility of research components
  - **I**nteroperable: describes the allowance of data exchange and reuse
  - **R**eusable: deals with licences and access restrictions for research components

Methodology

- Our exploratory study to investigate how authors adhere to artefact publication
- **Dataset sample:** We select papers published at S&P 2024
- **Phrase Detection:** Automatically identifying phrases associated with the description of an artifact
- **Validation Process:** We manually validate the resulting papers
- **Output Result:** The process of information extraction and manual validation generates a dataset

Methodology

- Our exploratory study to investigate how authors adhere to artefact publication
- **Dataset sample:** We select papers published at S&P 2024
- **Phrase Detection:** Automatically identifying phrases associated with the description of an artifact
- **Validation Process:** We manually validate the resulting papers
- **Output Result:** The process of information extraction and manual validation generates a dataset

Evaluation

- We examine a set of **244** papers, published at the *Security & Privacy Symposium 2024*
  - We first identify 57 papers from the entire corpus that presumably did not generate any artifacts
- 187 papers that produced artifacts of any form:
  - 156 papers that provide pointers to their artifacts
  - 31 papers in which no pointers to their artifacts

Discussion

- We discuss individual cases we observe in our data
- **No Pointers to artifacts**
  - 13 % of the corpus's papers do not provide public access
  - Often despite stating so in the text
- **Use of (Open Source) Software (OSS)**
  - Many of the papers we examine have not made their resulting software publicly available
  - When reusing OSS, upstreaming changes is rare
- **Open-Sourcing artifacts**
  - Open-sourcing research artifacts is not a trivial task
  - How to assure long term access?

Discussion

- We discuss individual cases we observe in our data
- **No Pointers to artifacts**
  - 13 % of the corpus's papers do not provide public access
  - Often despite stating so in the text
- **Use of (Open Source) Software (OSS)**
  - Many of the papers we examine have not made their resulting software publicly available
  - When reusing OSS, upstreaming changes is rare
- **Open-Sourcing artifacts**
  - Open-sourcing research artifacts is not a trivial task
  - How to assure long term access?

Discussion

- We discuss individual cases we observe in our data
- **No Pointers to artifacts**
  - 13 % of the corpus's papers do not provide public access
  - Often despite stating so in the text
- **Use of (Open Source) Software (OSS)**
  - Many of the papers we examine have not made their resulting software publicly available
  - When reusing OSS, upstreaming changes is rare
- **Open-Sourcing artifacts**
  - Open-sourcing research artifacts is not a trivial task
  - How to assure long term access?

Discussion

- We discuss individual cases we observe in our data
- **No Pointers to artifacts**
  - 13 % of the corpus's papers do not provide public access
  - Often despite stating so in the text
- **Use of (Open Source) Software (OSS)**
  - Many of the papers we examine have not made their resulting software publicly available
  - When reusing OSS, upstreaming changes is rare
- **Open-Sourcing artifacts**
  - Open-sourcing research artifacts is not a trivial task
  - How to assure long term access?

Discussion

- **Provision Upon Request**
  - Sharing content with such restrictions needs careful consideration
- **Lack of Standardisation**
  - Pointers to artifacts are specified in various ways and placed in different parts within the paper's text
  - This is improving slightly, see e.g., Usenix '26
- **Fostering Future Research**
  - Artifacts that are openly available empowers future research
- **Institutionalisation**
  - Provides cultural schemata that make these practices the norm

Discussion

- **Provision Upon Request**
  - Sharing content with such restrictions needs careful consideration
- **Lack of Standardisation**
  - Pointers to artifacts are specified in various ways and placed in different parts within the paper's text
  - This is improving slightly, see e.g., Usenix '26
- **Fostering Future Research**
  - Artifacts that are openly available empowers future research
- **Institutionalisation**
  - Provides cultural schemata that make these practices the norm

Discussion

- **Provision Upon Request**
  - Sharing content with such restrictions needs careful consideration
- **Lack of Standardisation**
  - Pointers to artifacts are specified in various ways and placed in different parts within the paper's text
  - This is improving slightly, see e.g., Usenix '26
- **Fostering Future Research**
  - Artifacts that are openly available empowers future research
- **Institutionalisation**
  - Provides cultural schemata that make these practices the norm

Discussion

- **Provision Upon Request**
  - Sharing content with such restrictions needs careful consideration
- **Lack of Standardisation**
  - Pointers to artifacts are specified in various ways and placed in different parts within the paper's text
  - This is improving slightly, see e.g., Usenix '26
- **Fostering Future Research**
  - Artifacts that are openly available empowers future research
- **Institutionalisation**
  - Provides cultural schemata that make these practices the norm

Conclusion

- We are undoubtedly not the first to make this argument
- Inconsistency in how access to research artifacts is provided (or not) in CS papers
- Shared concept of good scientific practice and to collaborate on standardizing publication practices for artifacts
- Ensure that research components are not merely shared, but are truly **F**indable, **A**ccessible, **I**nteroperable, and **R**eusable.

Closing Words

- Should we enforce promises made in the paper about availability?
- Should/Can we integrate artifact evaluation in the review process?
- Are we putting too much burden on authors to provide long term access?
- Are we happy with the trajectory towards open science?