Accountability: A Cross-disciplinary View

Preliminary Meeting

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Who we are

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http://www22.in.tum.de/teaching/accountabilityseminar/
Agenda for today

- Seminar theme
- Goals
- Possible Topics
- Road map
- Rules
- Dates
Introduction

- “Hide it or lose it”!
- I did but “they” hacked it!
Accountability: a definition

- “The capability of a system to answer **questions** concerning the why, how, by whom, where and when **specific events** have happened…” [Pretschner]
- ”A capability of a Socio-technical system to answer **questions** regarding the cause of occurred **unwanted events**” [Beckers et. al.]
- A ..... of a system that enables linking an unwanted behavior at run time to its possible cause.
Accountability: Where?

Accountability is cross-domain
Accountability: why?

- Open platforms and marketplaces
  - On-boarding, off-boarding of services
- Cloud deployment model
  - Hosts
- Autonomous systems
  - Microservices
    - Make decisions
    - Act independently
Accountability: how?

- Establish link between behavior and the cause
- System monitoring
- Causality analysis
Accountability blocks

- System Modeling
- Evidence
- Logs Pre-processing
- Causality
- Supporting
Accountability is cross-domain…
Related disciplines

- BlockChain
- Model checking
- Runtime verification (offline mode)
- Digital Forensics
- Log auditing
- Model based testing/analysis
- Intrusion detection systems
- Causality
- Fault localization and Delta debugging
- Accountability in Cyber-physical systems
- Anomaly detection
Seminar Literature

1. Accountability
2. Causality

3. Model checking
   d) (Survey) Ranjit Jhala and Rupak Majumdar. 2009. Software model checking. ACM Comput. Surv. 41, 4, Article 21 (October 2009), 54 pages. DOI=http://dx.doi.org/10.1145/1592434.1592438
Seminar Literature (continued)

4. Runtime verification

5. Digital Forensics
Seminar Literature (continued)

6. Log auditing/ mining

7. Delta debugging and Fault localization
8. Model based testing/analysis

9. Intrusion detection systems
Seminar Literature (continued)

10. Accountability in cyber-physical systems

11. Anomaly detection
Seminar Goals

- Understanding with respect to accountability
- Critical reading and understanding
- Comparing
- Classification
- Writing an exposé
- Presentation skills
Task Overview

- Independent work
  - Read and understand concepts
  - Look for papers/material beyond the initial suggestions
    - E.g. Academic publication portals, TUM library etc.
    - No Wikipedia! (Except if a source is picked – discuss with the supervisor)
  - No blogs!
- Discuss with your colleagues
- Talk with your supervisor whenever required
Roadmap

- Topic selection
- Literature review
- Intermediate submission
- Peer review
- Final submission 50 %
- Talks/Presentation 50 %
Administrative

- Master Seminar
- Maximum participants: 10
- Registration
  - Via matching.in.tum.de
  - From February 3rd – 8th
  - Do you want to be our preference?
Registration

- Choose 3 topics from the list (after matching)
  - Mail Ibrahim@in.tum.de latest by 1st March, 2017
  - Order of preference - 1 highest, 3 lowest
  - Include - Full name, IMAT number, TUM email ID

- Get a topic by email after end of matching round
Thanks!
Rules

- Grading
  - Intermediate submission
  - Table of contents
  - Extended abstract
  - Bibliography
  - Exposé (50%) + Presentation (50%)
  - Penalty for all late submissions

- In case of any issues (E.g. can’t find a paper)
  - Google
  - Ask your colleagues
  - Write to your supervisor
Rules

- Compliance with the prescribed deadlines
- Compliance with all templates
- Presence in all meetings
- Participation in the final presentations in a two (or three) day block-seminar
Intermediate Submission

- Ca. 2 pages
- Extended abstract
  - Introduction
  - Problem statement and goals
  - Short description of content of each subsection
  - Description of your own contribution/critique
- Bibliography
Exposé

- Max. 15 pages including appendix, LNCS format

- No plagiarism!
  - blatant copy-paste, summarizing others’ ideas/results without reference etc. will result in immediate expulsion from the course.

- Discussion of own contribution
- Complete bibliography
- Appendix, if needed
Content

- Don’t deviate from allotted topic
- Logical and contradiction-free reasoning
- Argue with proper sources
- If any contradictions in the source paper, don’t hide them.
Content

- Clear distinction between scientific facts and own logical conclusion
  - E.g. if something is “good” according to you, why?
  - Proper references

- Language
  - Easy to understand, simple (and short) sentences
  - Precise
  - Sensible titles
  - Sensible paragraphing
Content

- Tables and pictures
  - Cite sources
  - Must not be blurry
  - Large enough to be read in print
  - Must be referenced in text
  - Consistent numbering

- Bibliography
  - Must be referenced in text
  - Consistent numbering
  - Citation must include - Authors’ names, title, year of publication, venue (or publisher)
Possible Structure

- Title & abstract
- Introduction
- Topic content
- Results
- Related work
- Discussion & conclusion
- Bibliography
- Appendix
Presentation

- Ca. 30 minutes of talking
  - Clear, linear storyline.
  - Must match the exposé, but should not be a text dump
  - Possibility of discussing slides with supervisor

- Ca. 10 minutes of discussion
  - Be prepared for questions on the topic
  - Ask questions on the presented topic
Finding Literature

- TUM Library
  - Informatik
  - Others…

- Online portals
  - Springer (www.springerlink.com/)
  - ACM (dl.acm.org/)
  - IEEE (ieeexplore.ieee.org/Xplore/guesthome.jsp)
  - Google Scholar (scholar.google.com)
  - Scopus (scopus.com)
Important Dates

- Intermediate submission deadline: TBA
- Submission deadline for first exposé draft: TBA
- Discussion (paper+slides) with supervisor and revision: TBA
- Exposé submission deadline: TBA
- Receive peer’s paper for review: TBA
- Peer review deadline: TBA
- Camera ready deadline (paper+slides): TBA
- All documents must be submitted as PDF-files
- After submission of the slides, individual appointments for feedback for all students
- Block-seminar date(s). TBA.