

Requirements Engineering

Trends and Open Challenges

Prof. Dr. Alexander Pretschner

Chair of Software & Systems Engineering
TUM Department of Informatics
Technical University of Munich

Orientation



Recap:

- Everything you need to understand Requirements Engineering

Coming up:

- Trends and Open Challenges

Requirements Elicitation



Agile Games & Gamification

Social Media Mining



Design Thinking!

Cursino, R., Ferreira, D., Lencastre, M., Fagundes, R., & Pimentel, J. (2018, September). Gamification in requirements engineering: a systematic review. In *2018 11th International Conference on the Quality of Information and Communications Technology (QUATIC)* (pp. 119-125). IEEE.

Williams, G., & Mahmoud, A. (2017, September). Mining twitter feeds for software user requirements. In *2017 IEEE 25th International Requirements Engineering Conference (RE)* (pp. 1-10). IEEE.

Poth, A., & Riel, A. (2020, August). Quality requirements elicitation by ideation of product quality risks with design thinking. In *2020 IEEE 28th International Requirements Engineering Conference (RE)* (pp. 238-249). IEEE.

Automatically Generating Requirements

Extracting Requirements from **Contracts**

Create Requirements for apps by **mining reviews and app store data** from similar apps.

Use NLP to check Requirements for completeness (towards a specific goal, such as **GDPR** compliance)

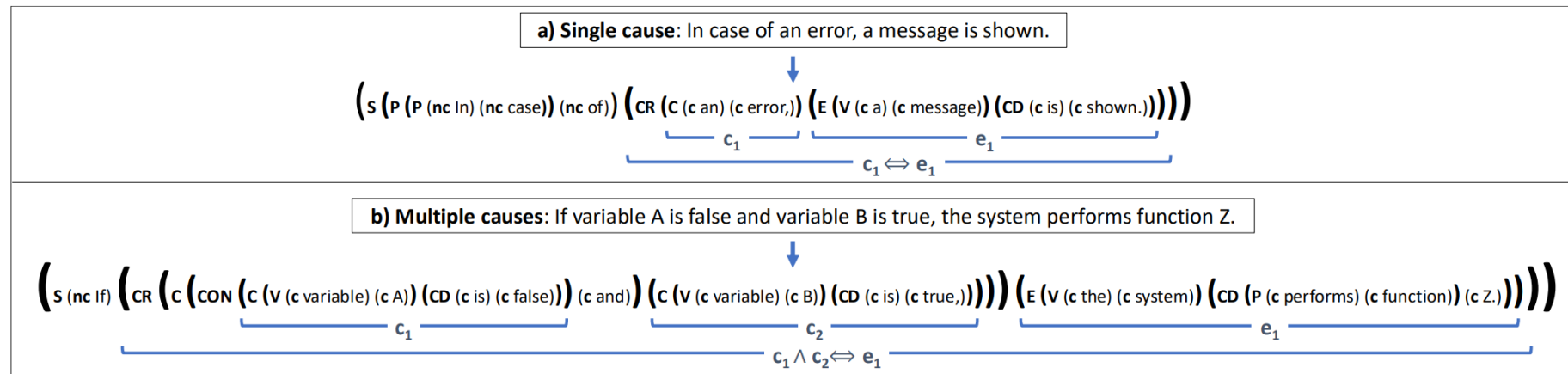
Sainani, A., Anish, P. R., Joshi, V., & Ghaisas, S. (2020, August). Extracting and Classifying Requirements from Software Engineering Contracts. In 2020 IEEE 28th International Requirements Engineering Conference (RE) (pp. 147-157). IEEE.

Iqbal, T., Seyff, N., & Mendez, D. (2019, September). Generating requirements out of thin air: Towards automated feature identification for new apps. In 2019 IEEE 27th International Requirements Engineering Conference Workshops (REW) (pp. 193-199). IEEE.

Torre, D., et al. (2020, August). An ai-assisted approach for checking the completeness of privacy policies against gdpr. In 2020 IEEE 28th International Requirements Engineering Conference (RE) (pp. 136-146). IEEE.

From Requirements to Tests: The CIRA Approach

Vision: Build a model with "causal" relationships from requirements, then generate test cases from this model.

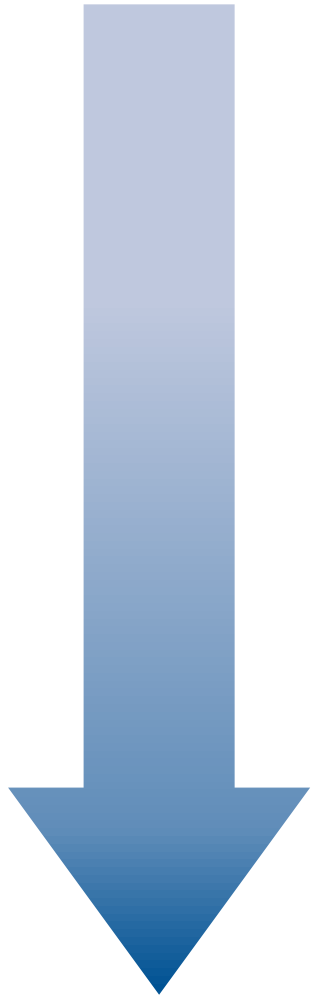


Fischbach, J., Frattini, J., Spaans, A., Kummeth, M., Vogelsang, A., Mendez, D., & Unterkalmsteiner, M. (2021). Automatic detection of causality in requirement artifacts: the cira approach. In Requirements Engineering: Foundation for Software Quality: 27th International Working Conference, REFSQ 2021, Essen, Germany, April 12-15, 2021, Proceedings (Vol. 12685, p. 19). Springer Nature.

Fischbach, J., Hauptmann, B., Konwitschny, L., Spies, D., & Vogelsang, A. (2020, August). Towards Causality Extraction from Requirements. In 2020 IEEE 28th International Requirements Engineering Conference (RE) (pp. 388-393). IEEE.

Ethical Deliberation

Outline and Outlook



EXAM

