Inclusion & Exclusion Criteria

For the book chapter on NLP4RE tools

This document contains the inclusion and exclusion criteria for articles potentially relevant to the NLP4RE tools list.

Criteria

ID	Inclusion	ID	Exclusion
I1	**RE**: The article explicitly declares the relevance of the presented results to the area of requirements engineering by making clear *which RE activity the tool supports*.	E1	**Accessibility**: The article is not accessible freely or by the BTH access program
I2	**Tool**: The article presents a (semi-) automatic algorithm and is an original contribution of the paper.	E2	**Language**: The article is not written in English
I3	**NLP**: The algorithm explicitly reports to involve at least one technology processing natural language (either as input or output), which is not limited to statistical NLP.	E3	**Duplicate**: The article is an extension or duplicate of an already included article.

Exploration

This section contains the thoughts gathered while exploring the inclusion/exclusion criteria.

Michael

REj: Westman, J., & Nyberg, M. (2019). Providing tool support for specifying safety-critical systems by enforcing syntactic contract conditions. Requirements Engineering, 24, 231-256.
- exclude: not NLP. Scanned the paper for any mention of natural language requirements and any form of analysis of that text. The formalization of the requirements happens by human processing, not automated.

REFSQ: Aya Zaki-Ismail, Mohamed Osama, Mohamed Abdelrazek, John Grundy, and Amani Ibrahim. CORG: A Component-Oriented Synthetic Textual Requirements Generator
- include: generates NL requirements. easy decision

RE: Ambade, P., Solanki, D., & Deb, N. (2021, September). RV-SLC: A Tool for Regression Validation of Safety and Liveness Constraints on Goal Models in DevOps Environment. In 2021 IEEE 29th International Requirements Engineering Conference (RE) (pp. 452-453). IEEE.

- exclude: not NLP. Short paper (2 pages) with no technical description of the tool.

SAC: Meroni, G., Mizmizi, M., Plebani, P., & Reggiani, L. (2020, March). Improving mobile business process monitoring with enhanced NFV MANO: a method to elicit connectivity requirements from process models. In Proceedings of the 35th Annual ACM Symposium on Applied Computing (pp. 69-76).
- excluded: not NLP and maybe also not RE (requirements here are rather specs or constraints of a system, quality of service requirements related to time and location).

ICSE: Hu, B. C., Marsso, L., Czarnecki, K., Salay, R., Shen, H., & Chechik, M. (2022, May). If a human can see it, so should your system: Reliability requirements for machine vision components. In Proceedings of the 44th International Conference on Software Engineering (pp. 1145-1156).
- excluded: not NLP and maybe also not RE. Paper establishes requirements for X, but is not focused on requirements *engineering*.

Julian

Khatamino, P., Camli, M. B., Öztekin, B., Gozumoglu, U., Tortumlu, E., & Gezer, H. M. (2021). An NLP-based Chatbot to Facilitate RE Activities: An Experience Paper on Human Resources Application. In REFSQ Workshops.
- excluded: uses NLP, but not for RE
- the Paper contains requirements *for* the tool, but the tool is a chatbot that does not contribute to RE

Schlutter, A., & Vogelsang, A. (2020, August). Trace link recovery using semantic relation graphs and spreading activation. In 2020 IEEE 28th International Requirements Engineering Conference (RE) (pp. 20-31). IEEE.
- included: the work presents a trace link recovery tool explicitly using NLP

Tizard, J., Devine, P., Wang, H., & Blincoe, K. (2023). A Software Requirements Ecosystem: Linking Forum, Issue Tracker, and FAQs for Requirements Management. IEEE Transactions on Software Engineering.
- included: this paper recovers trace links between forum posts and issue tracker entries describing requirements

Kolthoff, K., Bartelt, C., & Ponzetto, S. P. (2020, December). GUI2WiRe: rapid wireframing with a mined and large-scale GUI repository using natural language requirements. In Proceedings of the 35th IEEE/ACM International Conference on Automated Software Engineering (pp. 1297-1301).
- included: the paper parses user stories and converts them into GUI prototypes
- it therefore automates some sort of modeling task

Sadi, M. H., & Yu, E. (2021). RAPID: a knowledge-based assistant for designing web APIs. Requirements Engineering, 26, 185-236.
- included: the tool does not really use statistical NLP, but it implements a rule-based algorithm for requirements refinement.