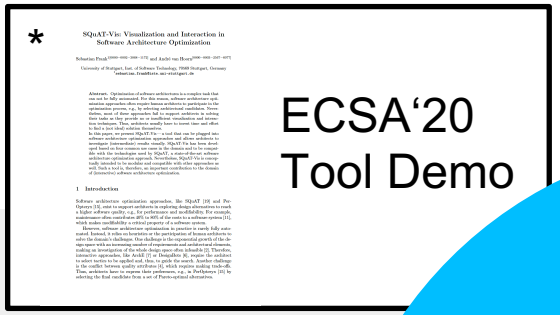
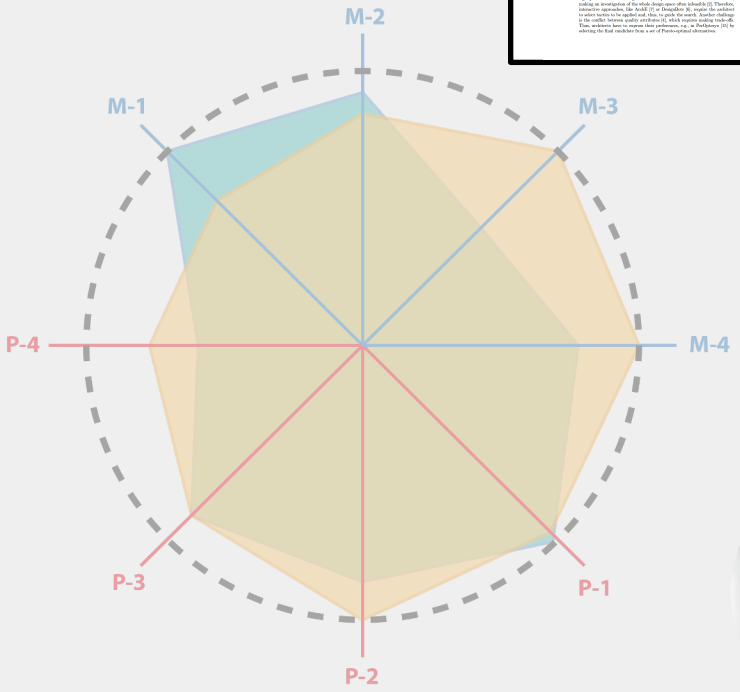
University of Stuttgart
Institute of Software Engineering
Software Quality and Architecture



ECSA'20
Tool Demo

SQA

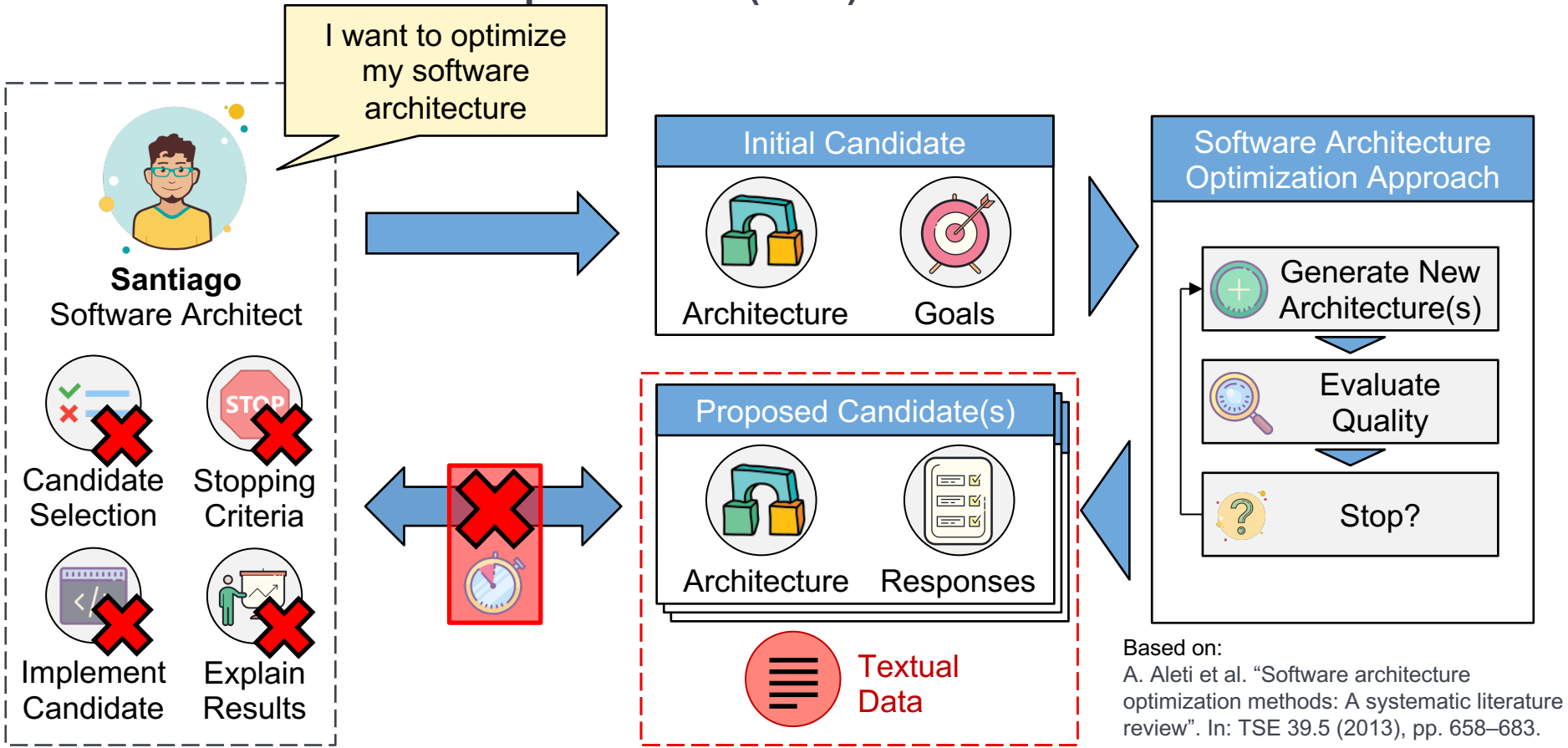


SQuAT-Vis: Visualization and Interaction in Software Architecture Optimization*

11th Symposium on Software Performance 2020 (SSP 2020) – Extended Abstract

Sebastian Frank,
André van Hoorn

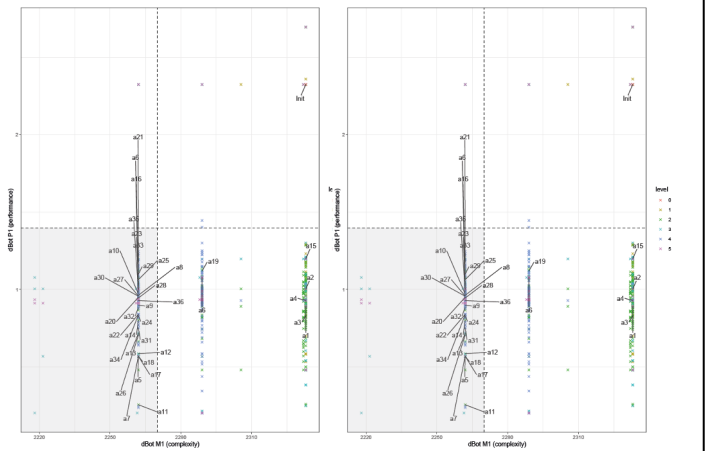
Software Architecture Optimization (SAO) - Context & Use Cases



Based on:
A. Aleti et al. “Software architecture optimization methods: A systematic literature review”. In: TSE 39.5 (2013), pp. 658–683.

Investigating SAO Results is difficult

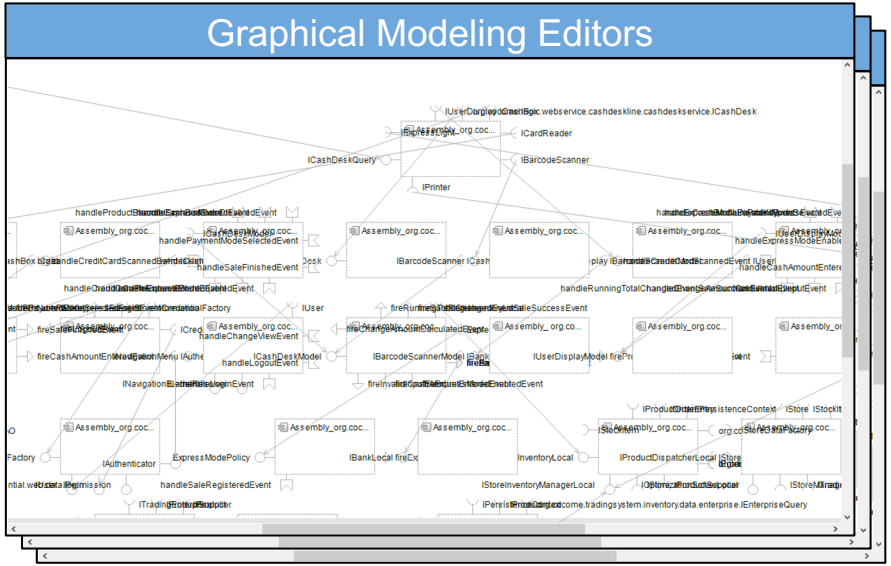
Plots / (Generic) Visualization Tools



Responses

Architecture

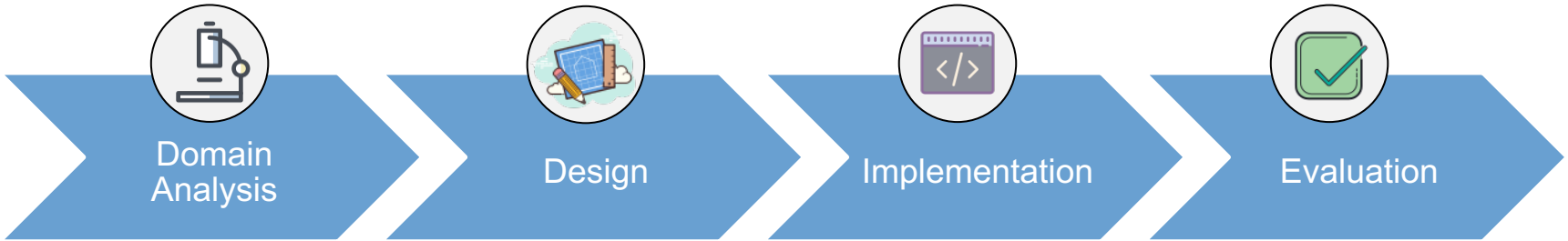
Graphical Modeling Editors



Goal

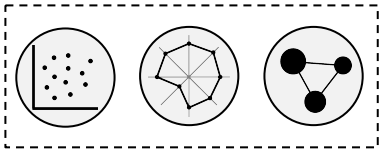
Investigate suitable visualization and interaction techniques to **support architects in (interactive) SAO** and **develop a tool** implementing these techniques.

Research Method and Process



- 4 Use Cases
- SAO Approaches

- Prototyping
- 3 Views

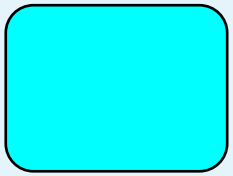


- GlassFish Server
- Javascript + D3.js

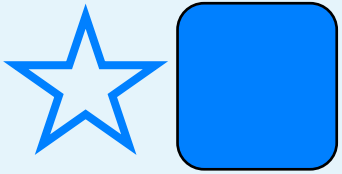
- Expert User Study
- Scalability Study

Groups & Tags

Candidate Groups



Current



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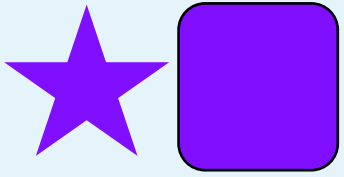
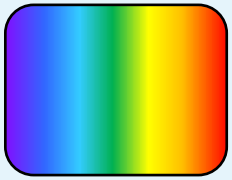
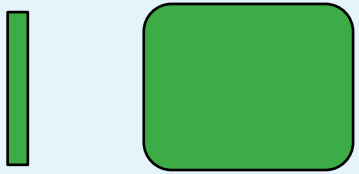


Selected

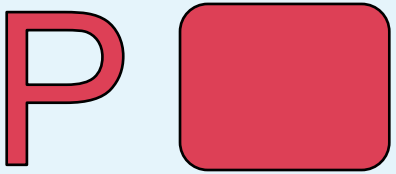


Comparison

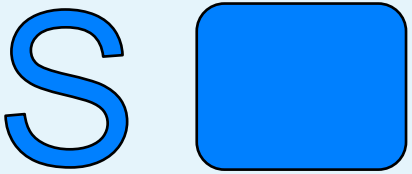
Candidate Tags



Initial



Pareto



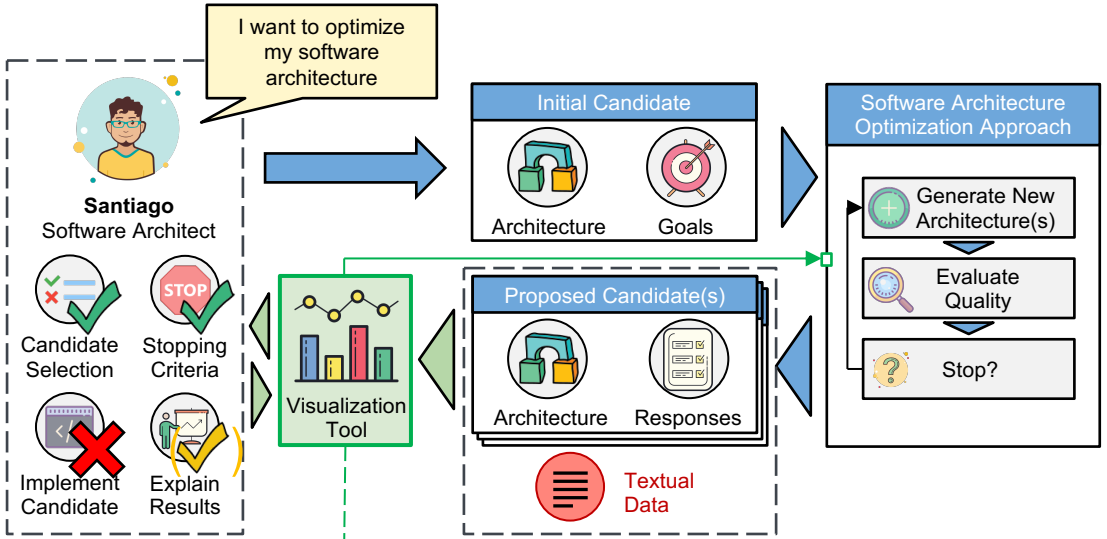
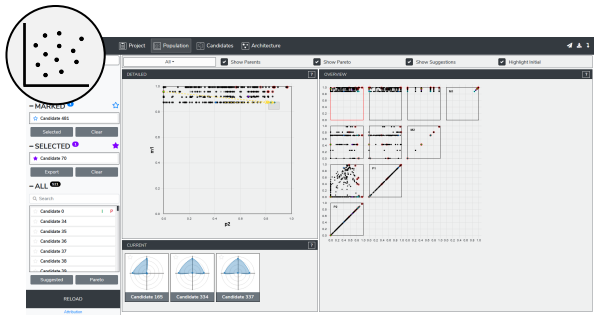
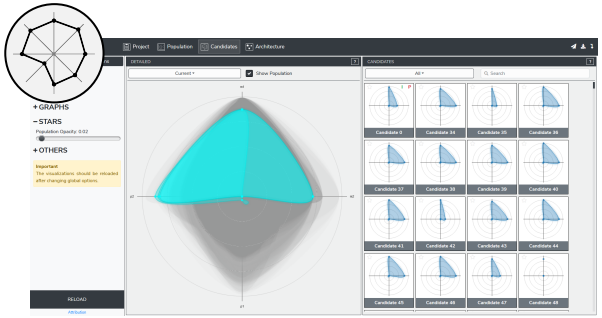
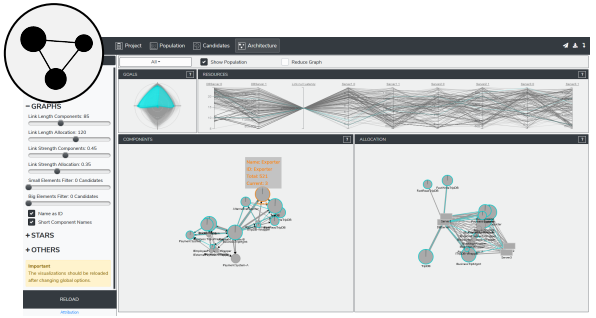
Suggested

Tool Demo

Evaluation: Use Cases

Case Study	ST+				CoCoME			
Task	Candidate Selection	Stopping Criteria	Implement Candidate	Explain Results	Candidate Selection	Stopping Criteria	Implement Candidate	Explain Results
Expert 1	✓	✓	(✓)	(✓)	(✓)	✓	✗	✗
Expert 2	✓	✓	(✓)	✗	✓	✓	✗	✗
Expert 3	(✓)		(✓)	(✓)	(✓)		(✓)	

Summary & Future Work



- Improve/Add Views
- Scalability
- „Tool Integration“