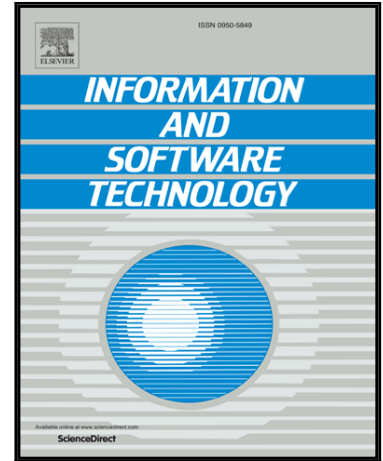


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Using argumentation theory to analyse software practitioners' defeasible evidence, inference and belief

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# Using argumentation theory to analyse software practitioners' defeasible evidence, inference and belief

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## ABSTRACT

**Context:** Software practitioners are often the primary source of information for software engineering research. They naturally produce information about their experiences of software practice, and the beliefs they infer from their experiences. Researchers must evaluate the quality and quantity of this information for their research.

**Objective:** To examine how concepts and methods from argumentation research can be used to study practitioners' evidence, inference and beliefs so as to better understand and improve software practice.

**Method:** We develop a preliminary framework and preliminary methodology, and use those to identify, extract and structure practitioners' evidence, inference and beliefs. We illustrate the application of the framework and methodology with examples from a practitioner's blog post.

**Result:** The practitioner uses (factual) stories, analogies, examples and popular opinion as evidence, and uses that evidence in defeasible reasoning to justify his beliefs and to rebut the beliefs of other practitioners.

**Conclusion:** The framework, methodology and examples could provide a foundation for software engineering researchers to develop a more sophisticated understanding of, and appreciation for, practitioners' defeasible evidence, inference and belief. Further work needs to automate (parts of) the methodology to support larger-scale application of the methodology.

## Keywords

behavioural software engineering; evidence; experience; story; argumentation; explanation; analogy; software practice; qualitative analysis; evidence based software engineering.

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