

Reframing Software Design: Perspectives on Advancing an Elusive Discipline

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ISR Technical Report # UCI-ISR-06-10

July 2006

Abstract: Software engineering researchers and practitioners have long had an uncertain and uneasy relationship with design. It is acknowledged that software design is critical and major strides have been made in advancing the discipline, but we all are keenly aware that something “is just not quite right” and that design remains one of the least-understood aspects of software engineering. In this paper, we present our novel *Eyeglass framework* and use it to offer a series of fresh perspectives on software design, its accomplishments, and fundamental challenges ahead. The Eyeglass framework is inspired by the broader discipline of design and evaluates software design in terms of seven interrelated dimensions: ideas, representation, activities, judgment, communication, domain of use, and domain of materials. The main conclusion of our examination is that we have unnecessarily limited ourselves in our explorations of software design. While there has been some success, to further advance the discipline we must step back, reframe software design to address all seven dimensions, and engage in a deep study of these dimensions, individually and as a whole.