

# XE (eXtreme Editor) - Tool Support for Evolution in Aspect-Oriented Programming

Wiwat Ruengmee, Roberto Silveira Silva Filho,  
Sushil Krishna Bajracharya, David F. Redmiles, Cristina Videira Lopes  
{wruengme, rsilvafi, sbajrach, redmiles, lopes}@ics.uci.edu

Department of Informatics  
Donald Bren School of Information and Computer Sciences, University of California  
Irvine, CA, 92697 USA  
ISR Technical Report # UCI-ISR-08-1  
June 2008

**Abstract.** In spite of the modularization benefits supported by the Aspect-Oriented programming paradigm, different usability issues have hindered its adoption. The decoupling between aspect definitions and base code, and the compile-time weaving mechanism adopted by different AOP languages, require developers to manage the consistency between base code and aspect code themselves. These mechanisms create opportunities for errors related to aspect weaving invisibility and non-local control characteristics of AOP languages. In short, AOP developers lack adequate support for: 1) visualizing and identifying the exact points in the code where aspects are woven; 2) preventing aspect-base code inconsistencies, and 3) evolving aspect-oriented code in a coherent way. This paper describes XE (Extreme Editor), an IDE that supports developers in managing these issues in the functional aspect-oriented programming domain. We validate our approach through a case study showing how XE reduces the cognitive effort of developers in evolving AOP programs.