



Software Engineering Seminar (WS 2016/17)

Mining Evolutionary Work-flows

Description

Learning the system behavior from event logs is a common approach in Software Engineering. Hence, The main goal of this seminar is investigating workflow mining approaches. Unlike the classical data mining approaches, the main purpose of the algorithms are focusing on workflows and provide for performance related requirements . Such techniques include (automated) process discovery (i.e., model extension, model repair, case prediction, and history-based recommendations [1]. Most of the existing approaches are focusing on the structure of the workflows and more information from event logs such as execution and response time, usage profile rates .. etc is needed. The student is expected to implement an grammar induction algorithm by using event traces and report the results properly with a possible comparison with existing techniques. It is highly recommended to extend this seminar as a M.Sc topic since it touches many various problems in Software Engineering.

Prerequisites

A basic knowledge of Software Engineering I/II and Mathematical background

References

- [1] Cagatay Catal and Banu Diri. A systematic review of software fault prediction studies. *Expert Systems with Applications*, 36(4):7346 – 7354, 2009.
- [2] T. Gyimothy, R. Ferenc, and I. Siket. Empirical validation of object-oriented metrics on open source software for fault prediction. *Software Engineering, IEEE Transactions on*, 31(10):897–910, Oct 2005.
- [3] S. Kanmani, V. Rhymend Uthariaraj, V. Sankaranarayanan, and P. Thambidurai. Object-oriented software fault prediction using neural networks. *Information and Software Technology*, 49(5):483 – 492, 2007.
- [4] TaghiM. Khoshgoftaar and Naeem Seliya. Fault prediction modeling for software quality estimation: Comparing commonly used techniques. *Empirical Software Engineering*, 8(3):255–283, 2003.
- [5] Susan A. Sherer. Software fault prediction. *Journal of Systems and Software*, 29(2):97 – 105, 1995.

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