

- **July 2015 – April 2016, ERICSSON TURKEY Improving the Quality of Testing**

This is an applied research project with the industrial partner on measuring the quality of test cases and predicting the effects of the quality of tests on production defects. A suitable set of metrics for testing process was extracted and their relationships with the production defects were analyzed. A tool prototype for predicting defects based on the quality of test cases was proposed.

- **January 2013 – (ongoing), FiDiPro Project: “Operational Excellence in Industrial SW and Application Development with Empirical SW Engineering”**

This project is led by Prof. Natalia Juristo as a professor in Finland Distinguished Professor Program (FiDiPro), and hosted by Prof. Markku Oivo in University of Oulu. The project aims to help companies to achieve operational excellence and transparency in their software development. These two objectives will be reached by empirical research that will help in gaining thorough understanding and knowledge on their software development processes. During the first year of the project, I have been working as a researcher to plan and conduct controlled experiments with Finnish companies in order to understand the effects of test-driven development on software process and product quality, and productivity.

Worked as doctoral student/researcher in various projects (in Software Research Laboratory) listed below:

- **May 2009 – Jan 2010, IBTech Effort Estimation Project**

This is an applied research project with the industrial partner on setting up an effort estimation model within the company. Previous projects' effort multipliers and actual effort data (in man-hours) are used to estimate the effort of a new project. Business objectives and research goals are to conduct a metrics program, collect necessary measurements and make accurate estimations whose error rate is less than 25% interval. A summary of this research is published in EUROMICRO'10.

- **May 2009 – Jan 2010, TURKCELL Confidence Factor using Bayesian Networks**

This is an applied research project with the industrial partner on measuring the software reliability using Bayesian Net approach. Business objectives are to measure the overall software reliability index (confidence level) of a product which has not yet been in production phase, and to decide whether to go on or cancel the production. Research goal is to measure software reliability by building a comprehensive network including software process maturities, their relationships, cost-related factors and defect density. A summary of this research is published in AI Magazine'11.

- **July 2008 - Sept 2008, ARAS Information Technology Audit**

This project is an audit inside the information technology unit of the company to report senior management about the maturity of software processes.

- **Apr 2008 – Jan 2010, TURKCELL Metrics and Defect Prediction Project**

This is an applied research project with the industrial partner on setting up a metrics data program within the company. Code measurements are used to predict pre-release defects in their software system in order to monitor/ control the development process. The business objective and research goal is to improve software quality by decreasing the defect rate and the testing effort. This research is published in PROMISE'09, Information and Software Technology Journal'11, AI Magazine'11.

- **Jan 2007 – Jan 2009, BILMED Process Improvement and Quality Project**

The aim of this collaboration is to improve the efficiency in software development practices including requirements management, requirements engineering and change management in order to achieve effective resource allocation and management, and increase the product quality with fewer defects. A summary of this research is published in SEKE'09.

- **Mar 2007 – Dec 2008, ARCELIK Metrics and Defect Prediction Project**

This research collaboration aims to apply a code measurement, analysis and defect prediction program within the company to predict defective parts of their software before the testing phase. A summary of this research is published in ESEM'08 conference.