## Two-day doctoral seminar, 29th and 30th October 2015 at University of Oulu

Organized by:
Graduate School of Software Systems and Engineering (SoSE)
University of Oulu, Department of Information Processing Science
www.sose.oulu.fi

**Industry-academia collaborations in software engineering: a literature review and a practical approach to ensure success**

Assoc. Prof. Dr. Vahid Garousi, Department of Computer Engineering,
Hacettepe University, Ankara, Turkey

The seminar is open for all. Please register in advance:
liisa.kuonanoja@oulu.fi

**Speaker bio:**

Vahid Garousi is an Associate Professor of Software Engineering in Hacettepe University in Ankara, Turkey. Previously, he served as an Associate Professor of Software Engineering in the University of Calgary, Canada from 2006 until 2014. Vahid completed his PhD in Software Engineering in Carleton University, Canada, in 2006, his MSc in the University of Waterloo, Canada, in 2003 and his BSc degree in Sharif University of Technology in Iran in 2000. In parallel to his academic career, he is a practicing software engineering consultant and coach, and has provided consultancy and corporate training services in several countries in the areas of software testing and quality assurance, model-driven development, and software maintenance. During his career, Vahid has been active in initiating a number of major R&D software engineering projects in Canada and Turkey. He has been involved as an organizing or program committee member in many international conferences, such as ICST, ICSP, CSEE&T, MoDELS and the Turkish National Software Engineering Conference. He is a member of the IEEE and the IEEE Computer Society, and is also a licensed professional engineer (PEng) in the Canadian province of Alberta. He has been selected a Distinguished Visitor (speaker) for the IEEE Computer Society's Distinguished Visitors Program (DVP) for the period of 2012-2015. Among his awards is the prestigious Alberta Ingenuity New Faculty Award in June 2007. For more information, visit: http://web.cs.hacettepe.edu.tr/~vahid/

# The Seminar

**Brief Course Description**

Collaboration between industry and academia supports improvement and innovation in industry and helps to ensure industrial relevance in academic research. However, many researchers and practitioners believe that the level of joint industry-academia collaborations (IAC) in software engineering (SE) is still relatively very low, compared to the amount of activity in each of the two communities. It seems that the two 'camps' show only limited interest/motivation to collaborate with one another. Many researchers and practitioners have written about the challenges, success patterns (what to do, i.e., how to collaborate) and anti-patterns (what not do do) for industry-academia collaborations.

This course will start by a systematic literature review (SLR) recently conducted in this area by the speaker and two of his colleagues. A list of 63 challenges, 127 best (success) practices, and 37 anti-patterns will be discussed. The speaker will then review several successful and 'challenged' (less successful) IAC projects which he has led in Canada and Turkey. Empirical quantitative assessments of the pool of the selected IAC projects w.r.t. challenges, success patterns, anti-patterns, experience, and success stories will be discussed. Based on the empirical assessments, the speaker will present a set of empirical findings and evidence-based recommendations, e.g.: it has been observed that even if an IAC project may seem perfect from many aspects, but one single major challenge (e.g., disagreement in confidentiality agreements) can lead to its failure. He will furthermore report quantitative correlation and inter-relationship of challenges, patterns and anti-patterns with project success measures. The short course intends to encourage and benefit the students in conducting successful IAC projects in software engineering.

As the exercise, students will be asked to work in teams and find topics of interest for IAC in their areas of expertise in SE, and to analyze challenges, success patterns, and anti-patterns. In each team, which will include two students, one student will "play" the role of a researcher and the other will play the role of a typical practitioner.

**Required Readings:**

Review several (at least five) papers form the following online Systematic Literature Review (SLR) repository to get familiar with the subject:

> V. Garousi, K. Petersen, and B. Ozkan, "Online SLR repository for industry-academia collaborations in software engineering" http://goo.gl/gWrGrg, 2015

Since the IAC projects to be discussed (reviewed) are mostly in software testing and one in software documentation, students are expected to have reasonable background in these two sub-areas of software engineering.

**Schedule:**

**Day 1: 29.10.2015 (Thu) @ SÄ112 and SÄ114**

| Time | Topic |
|---|---|
| 9:15 am – 10:15 am @SÄ112 | • Introduction and review of the short course<br>• Reviewing the results of the SLR on the challenges, success patterns and anti-patterns in IAC in SE |
| 10:15 am – 10:30 am | Coffee Break |
| 10:30 am – 11:45 am @SÄ112 | • Cont… of "Reviewing the results of the SLR" |
| 11:45 am – 12:45 pm | Lunch |
| 12:45 pm – 1:45 pm @SÄ114 | • Technical review of the pool of IAC projects in Canada<br>o Project 1: Decision-support to answer "When to automate testing"<br>o Project 2: Optimizing software documentation efforts |
| 1:45 pm – 2:45 pm @SÄ114 | • INTORDUCTING the empirical quantitative assessments of a pool of IAC projects in Canada and Turkey w.r.t. challenges, success patterns, anti-patterns, experience and success stories<br>• Task assignment, group formation & brainstorming<br>o Students will find topics of interest for IAC in their areas of expertise. Two students will forms teams in which one will "play" the role of a researcher and the other will play the role of a typical practitioner. They will be asked to report their findings at the end of the course |

**Day 2: 30.10.2015 (Fri) @SÄ114**

| Time | Topic |
|---|---|
| 9:15 am – 10:15 am @SÄ114 | • Technical review of the pool of IAC projects in Canada<br>o Project 3: Introducing test automation in the context of Supervisory Control and Data Acquisition (SCADA) software<br>o Project 4: Introducing automated environment configuration testing to address staging environment instability |
| 10:15 am – 10:30 am | Coffee Break |
| 10:30 am – 11:45 am @SÄ114 | • Technical review of the pool of IAC projects in Turkey<br>o Project 5: Software Performance Engineering in a Turkish government agency (YTB)<br>o Several ongoing software testing projects in a defense setting (HAVELSAN) |
| 11:45 am – 12:45 pm | Lunch |
| 12:45 pm – 1:45 pm @SÄ114 | • Putting it altogether: CONTIUTATION of the empirical assessments of the pool of IAC projects w.r.t. challenges, success patterns, anti-patterns, experience and success stories |
| 1:45 pm – 2:45 pm @SÄ114 | • Wrap-up: student groups will report their findings & brainstorming |