8th Intl. Workshop on Requirements Engineering Education & Training

REET '14: Workshop Proposal

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***Workshop Title*— The Eigth International Workshop on Requirements Engineering Education and Training (REET'14).**
In conjunction with the 22nd International Requirements Engineering Conference (RE'14).

I. Motivation and Objectives of the Workshop

Effective Requirements Engineering (RE) is increasingly recognized as a critical component in the success of software, product, service, and platform development projects. Although RE is traditionally rooted in software engineering, RE methods and practices are applicable across a variety of industrial disciplines. Practitioners ranging from business analysts through electrical engineers, mechanical engineers, interface designers, and many others find RE techniques invaluable. As a result, university curricula in multiple fields are beginning to address RE skills as a foundational skill set within their disciplines. Furthermore, many industrial organizations are recognizing the need to develop RE related training programs as part of their ongoing process improvement initiatives.

Expanding on the success of seven previous workshops on Requirements Engineering Education and Training (REET 2005, 2007, 2008, 2009, 2010, 2011, and 2012), this workshop will address issues related to RE education, both as part of a formal university degree and as ongoing skills training within the workplace. With this workshop, the eigth in the series, we hope to focus especially on the perceived gap between academia and industry. How can our academic colleagues better prepare their students to enter the workforce with strong RE skills, including potential to lead and develop the practice when they enter the workforce? REET'14 is intended to go much deeper than a surface discussion of general curriculum issues and will examine specific ideas and techniques for teaching and assessing skills needed to effectively engineer requirements in a variety of contexts.

Following the theme of RE'14, "Innovation in and through Requirements Engineering", REET '14 elicits papers and presentations that offer innovative strategies or proposals to address some of the challenges in RE Education and Training. Given the breadth of industrial disciplines where RE is relevant, how are academic institutions addressing questions of curriculum? In which department(s) should RE reside? What are the practical differences between teaching RE to prospective business analysts and future engineers? Within industry, how might RE education and training be offered to practitioners who may be quite proficient in their primary disciplines but find themselves less confident when they must specify requirements for a project or product? Both academia and industry face challenges that globalization brings. What techniques are effective to teach specification in the context of a multilingual university or corporation? What opportunity – and risk – does distance education offer to students and practitioners of RE?

In addition to topics related to curriculum development, innovative contributions related to pedagogical techniques for teaching RE skills are strongly encouraged. These skills include: requirements elicitation, modeling, analysis, conflict negotiation, consensus building, requirements specification writing, verification, and change management. Submissions could take the form of experience reports or demonstrations of specific teaching techniques and training materials.

Workshop Themes

- Curriculum for industrial training and education programs (including but not limited to software engineering)
- Curriculum for undergraduate and graduate RE courses
- Alternative pedagogical techniques, including online learning, instructor-led distance learning, and asynchronous instruction in both academic and industrial contexts
- Identifying and incorporating specific RE related topics into nontraditional (non-software or business analysis) curricula

- Further advancement of RE education and training within software and business analysis disciplines

Techniques and topics for teaching specific RE related skills

- Creative methods for teaching stakeholder identification, requirements elicitation, analysis and validation, specification, and verification.
- Specific tools, exercises, and assignments developed to support RE skills training
- Assessment methods and practices of RE knowledge and skills, and when to use which method
- Strategies for assessment of learning soft skills
- Addressing skill mismatches or gaps between graduating students and industry needs in practice
- Studies into the effectiveness of various RE educational practices
- Experience reports including industrial training and university level curriculum

Potential expected outcomes:

The primary objectives of the REET'14 workshop are to:

- Identify core RE skills that should be incorporated into the curriculum at various levels and to outline feasible RE curricula
- Exchange ideas on techniques, exercises, and tools for teaching specific RE related skills
- Improve understanding of effective RE teaching practices
- Share RE educational resources with one another

II. TARGET AUDIENCE

This workshop is open to the public. The session can accommodate up to 35 people. The following types of attendees are particularly encouraged to attend:

- Educators currently teaching or planning on teaching RE courses
- Academics intending to integrate RE content into existing more generalized courses
- Practitioners interested in developing or improving RE training and education in the work place

Our intent is to advertise to and attract a broad cross-section of individuals with an interest in advancing the practice of teaching methods and practices of Requirements Engineering. The diverse backgrounds of the workshop organizers afford connections in academia, consulting, and industry, with access to business analysts, engineers, strategic planners, human factors and usability personnel, and multiple other roles in which RE practices are necessary. Within industry, we often face challenges of individuals who are expected to author requirements specifications, but never received the requisite training in their own academic programs. Students in a wide range of disciplines find RE a useful complement to their studies, and practices explored in academia may well offer industry insights into how to address gaps in knowledge among practitioners.

REET is uniquely situated as the one annual forum where students, faculty, and practitioners from multiple disciplines and different work or study environments can come together to discuss best practices in developing and disseminating training and education in RE.

III. PAPER FORMAT, CONTRIBUTIONS, AND EVALUATION

Position papers (3-5 pages)

Short papers will state the position of the author(s) on any of the topics within the scope of the workshop. For example, positions papers could describe experiences with a particular method for teaching an RE related skill, or could describe an innovative approach to incorporating RE education into the degree curriculum. Position papers will be evaluated based on their potential for generating discussion, and on the originality of the positions expressed.

Full papers (8-10 pages):

Full papers will describe RE educational techniques, survey results, or experiential reports. For example, a full paper might describe a specific technique for teaching an RE skill and include a case study describing its implementation and evaluation of its effectiveness as well as lessons learnt. As another example, a full paper might describe a mature tool for supporting RE training.

Requirements Teaching or Training Activity

Pedagogical papers will describe a teaching activity and provide all of the materials needed to reproduce that activity in the classroom. Authors of full and position papers, plus anyone else interested in attending the workshop are encouraged to submit an RE activity. RE activities will be documented using a predefined format, and will focus on one or more RE skills, define target audience and learning goals, provide step-by-step guidelines for conducting the activity, include student hand-outs or associated slides, describe the context of the activity, and briefly comment on its prior use in the classroom.

Evaluation Process

A committee of approximately 10 reviewers from both industry and academia will provide 2-3 peer reviews for each

paper. Candidate Program Committee members have been identified, and their participation will be secured pending acceptance of the workshop proposal itself.

For REET'14, we intend to comprise approximately half of the Program Committee (10-12 people) with individuals who have participated in this capacity before, both from industry and academia. We plan to include other Program Committee members who have not previously served. Through this balance, we will both expand the breadth of participants in the workshop's design and evaluation, as well as continue to expand the reach of RE Education and Training discussion into other academic contexts and industrial settings.

IV. Workshop Format

REET'14 will be an interactive workshop, combining presentations of accepted papers with demonstrations of pedagogical techniques and practices. Sufficient time will be allocated to allow for discussion between presentations. Attendees of previous REET workshops have found the opportunities afforded for networking between academic and industrial participants to be especially helpful, and we plan to continue to facilitate such discussions in REET'14.

V. Workshop Paper Publishing Plans

Papers delivered at REET'14 will be published with CEUR WS proceedings. In addition, we will offer the opportunity for participants and presenters to share resources, including pedagogical best practice presentations and other job aids, with workshop attendees via an online forum established to distribute work to registered attendees. Teaching materials, photographs or videos that demonstrate techniques in practice, and discussions about pedagogical practices will be enabled via this forum.

VI. Duration of the workshop

REET'14 will be a one-day session.

VII. History of the workshop

REET 2005
1st International Workshop on Requirements Engineering Education and Training
30th August 2006, Paris (no count available)

REET 2007
2nd International Workshop on Requirements Engineering Education and Training
15th October 2007, New Delhi (~15 participants)

REET 2008
3rd International Workshop on Requirements Engineering Education and Training
9th September 2008, Barcelona (~20 participants)

REET 2009
4th International Workshop on Requirements Engineering Education and Training
31st August 2009, Atlanta (~25 participants)

REET 2010
5th International Workshop on Requirements Engineering Education and Training
28th September 2010, Sydney (13 participants)

REET 2011
6th International Workshop on Requirements Engineering Education and Training
29th August 2011, Trento (13 participants)

REET 2012
7th International Workshop on Requirements Engineering Education and Training
24th September 2012, Chicago (12 participants)

Each REET workshop held at previous RE conferences has expanded the scope of knowledge and practice for its attendees.

Participants in previous REET workshops have commented on the unique balance of paper presentation and practical, hands-on pedagogical experimentation that is a hallmark of this particular workshop. Anecdotally, we are aware that some of the activities taught during previous REET sessions have been replicated in both corporate and academic settings. A paper delivered in 2009 discussing distance learning with a group of students in Iran led to an attendee's development and pilot of a distance learning course in Requirements Specification within a corporate environment.

For REET'14, we will contact previous participants in REET sessions and elicit specific information on lessons learned, as well as questions needing further exploration to continue to advance both the practice as well as further

collaboration between academia and industry in our shared pursuit of improving the quality and consistency of RE Education and Training.

VIII. Workshop Organizers

REET'14 will be organized and facilitated by three RE professionals with distinctly different professional roles, but who share a common passion for developing and sharing best practices in Requirements Engineering.

Sarah Gregory (sarah.c.gregory@intel.com)

Sarah Gregory is a Senior Platform Methodologist at Intel Corporation, focused on research, development, and piloting of practices in Requirements Engineering. Since 2006, she has had primary responsibility for deployment of the corporate RE training curriculum within Intel, including instructor development and evolution of the RE curriculum to better suit a global workforce. Since 2000, over 14,000 participants have attended one or more of Intel's internally-developed seminar-style courses introducing RE practices, representing many different roles, backgrounds, and professional disciplines. Sarah's research interests include interpretive challenges among authors and readers in a multilingual company, and instructor-led distance learning as a pedagogical practice in a global corporate environment. Sarah was a participant in REET '08, REET '09, REET '10, and REET '11.

Birgit Penzenstadler (bpenzens@uci.edu)

Birgit Penzenstadler is a postdoc at the University of California, Irvine. She did her PhD in the area of requirements engineering at Technische Universität München (TUM), where she also lead research projects with BMW, Daimler, Siemens, Bosch, Lufthansa, and others. She has organized and moderated events of over 100 participants from different domains at TUM.
She has been teaching Requirements Engineering at university for a few years and has participated and published at earlier REET workshops.

Dieter Landes (dieter.landes@hs-coburg.de)

Dieter Landes is a full professor at the University of Applied Sciences since 1999. He did a PhD on knowledge-based systems at the University of Karlsruhe, Germany. Outside academia, he worked several years as a software engineer, project manager, consultant, and researcher in several companies, e.g. Daimler. He is teaching requirements engineering for more than ten years and currently leads a large interdisciplinary research project that is devoted to the improvement of education in software and requirements engineering. He also serves on the program committees of several international conferences on various aspects of software and requirements engineering