Workshop Proposal: The Third International Workshop on Coding and Human aspects of Educational Software Engineering (CHESE 2017)

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Abstract

Educational software engineering (i.e., software engineering for education) focuses on developing software engineering technologies (e.g., software testing and analysis, software analytics) for general educational tasks, including but going beyond educational tasks for software engineering. A recent example in educational software engineering leveraging an advanced test-generation tool (Pex) is Microsoft Research's Code Hunt. This workshop focuses on (1) building up the research community of educational software engineering, around platforms, systems, and tools such as Code Hunt; (2) fostering collaboration among the research, education/training, and industry communities. The aim of the workshop is not only to act as a forum for the exchange of ideas, but also as a vehicle to stimulate, deepen, and widen partnership between software engineering and education fields internationally.

The workshop is relevant to SPLASH and OOPSLA because major topics in educational software engineering are exactly the topics covered by OOPSLA, such as abstraction, divide and conquer, object orientation, information hiding, and encapsulation.

1. Theme, goals and format

Educational software engineering (i.e., software engineering for education) focuses on developing software engineering technologies (e.g., software testing and analysis, software analytics) for general educational tasks, including but going beyond educational tasks for software engineering. This workshop focuses on (1) building up the research community of educational software engineering, around Code Hunt (http://research.microsoft.com/projects/codehunt/) along with various other platforms, systems, and tools; (2) fostering collaboration among the research, education/training, and industry communities. The aim of the workshop is not only to act as a forum for the exchange of ideas, but also as a vehicle to stimulate, deepen, and widen partnership between software engineering and education fields in the international scale.

Advances in software engineering have improved the state-of-the-art in educational software engineering. CHESE 2017 will focus on building up the research community of educational software engineering, around the educational coding game, Code Hunt along with various other platforms, systems, and tools.

The 1st International Code Hunt Workshop on Educational Software Engineering (CHESE 2015) was held in co-location with ISSTA 2015 in Baltimore, Maryland. The workshop attracted about 15 attendees. The workshop was well received by the attendees.

The 2nd CHESE workshop took place on November 14, 2016 in Seattle, Washington, U.S.A., along with FSE 2016 (the 24th ACM SIGSOFT International Symposium on Foundations of Software Engineering). The workshop website is at: https://www.microsoft.com/en-us/research/event/2nd-intl-code-hunt-workshop-on-educational-software-engineering-chese-2016/. CHESE 2016 attracted over 15 attendees. The high quality paper presentations, stimulating invited talks, and active panel discussions led to an impetus from the community to continue the topic.

In addition, before the above workshops, the Microsoft Research Code Hunt Workshop 2015 was held in early February 2015 at Seattle, Washington, organized and sponsored by Microsoft Research. About 20 attendees from around the world attended this workshop. Goals of the workshop were to expose the state of the platform and data of Code Hunt

and its underlying software, and to collectively decide on development work that can be done by the community in the future. This workshop was very successfully organized.

This year, to attract more educational software engineering submissions that are not directly related to Code Hunt, we changed the workshop title to Coding and Human aspects of Educational Software Engineering and retained the same acronym CHESE.

This one-day workshop will be formatted to include some of the following: an invited keynote talk, paper presentations, tool demonstration, panels, and interactive sessions such as lightning talks, small-group discussions, and an open discussion session. The organizers are familiar with these activities for involving the maximum number of participants.

2.   Organizers

The two program co-chairs of the workshop will be:
- Dr. Chang Liu, Associate Professor, School of Electrical Engineering and Computer Science, Ohio University, Ohio, USA
- Dr. Sébastien Combéfis, Lecturer, École Centrale des Arts et Métiers (ECAM), Belgium

This will be the third CHESE workshop in three years. The CHESE steering committee has been instrumental in setting the goals and the vision for each year's CHESE workshop. This year, the CHESE steering committee will consist of the following members:
- Judith Bishop (University of Stellenbosch) <judith-bishop@outlook.com>
- Tao Xie (University of Illinois at Urbana-Champaign) <taoxie@illinois.edu>
- Nikolai Tillmann (Facebook) <nikolait@fb.com>

Chang Liu is an Associate Professor of Computer Science at Ohio University, specializing in software engineering and learning/training games.. Chang was a program co-chair of CAST 2006 (Conference of the Association for Software Testing). He was a program co-chair of the 2nd CHESE workshop in 2016.

Sébastien Combéfis is a Lecturer at ECAM Brussels Engineering School in Belgium. His main areas of research are formal methods for human-machine interaction, program analysis, and computer science education. His interest is currently targeted on this later area, more precisely gamification, development of new pedagogical devices to teach and learn computer science, in particular for secondary school students, distance learning and MOOCs. He is the organiser the Bebras international contest for Belgium. He published a full paper to both previous editions of the CHESE workshop.

Tao Xie is an Associate Professor in the Department of Computer Science at the University of Illinois at Urbana-Champaign. He was a co-organizer of various workshops, and initiated the CHESE workshops in 2015.

Nikolai Tillmann is a software engineer at Facebook, and was previously a Principal Software Engineering Manager at Microsoft's Tools for Software Engineers group. He was a co-organizer of various conferences and workshops and has been on the SC of CHESE 2015 and 2016.

Judith Bishop was Director of Computer Science at Microsoft Research and is now an Extraordinary Professor at the University of Stellenbosch, South Africa. She has been on the SC of CHESE since it's inception and was co-chair in 2015.

3.   Anticipated Attendance

Ideally, we expect forty to fifty attendees with about half of them being organizers, presenters, or panellists. The minimum expected number of participants is fifteen. The maximum would be one hundred because an event with over one hundred will be too large for intense interaction and community building.

4.   Advertisement

The workshop solicits two types of submissions: regular papers (4-6 pages) and position statements or tool demonstrations (2 pages). The workshop welcomes submissions on broad topics in educational software engineering. In addition, the workshop also welcomes (1) experience reports on playing Code Hunt games or constructing Code Hunt games; (2) data analysis reports on Code Hunt data (players' playing history) released by Microsoft Research; (3) tool demonstrations of any educational software engineering tools.

The submissions will be peer-reviewed by at least three program committee members. The workshop organizers will make acceptance decision based on the reviews provided by the program committee members. Conflict of interests (COI) will be carefully handled during the reviewing process. Below is an incomplete list of proposed tentative program committee members (many of whom served on the CHESE 2015/2016 program committees or authored a CHESE 2015/2016 paper):
- Kendra Cooper (UT Dallas)
- Sandro Fouche (Towson University)
- Sumit Gulwani (Microsoft Research)
- Dan Grossman (University of Washington)
- Philip Guo (University of Rochester)
- Mehran Sahami (Stanford University)
- Nigel Horspool (University of Victoria, Canada)
- Letizia Jaccheri (NUST, Norway)
- Amey Karkare (IIT Kanpur, India)
- Martin Monperrus (University of Lille, France)
- Rishabh Singh (Microsoft Research)
- Armando Solar-Lezama (MIT)
- Willem Visser (Stellenbosch Univ., South Africa)
- Qianxiang Wang (Peking University, China)

- Westley Weimer (University of Virginia)
- Jim Whitehead (UC Santa Cruz)
- Hongyu Xiang (Austalian National University, Australia)
- Florian Zuleger (TU Wien, Austria)

Below is the proposed timeline:
- Submission Deadline: May 1, 2017
- Author Notification: June 15, 2017
- Camera Ready: July 1, 2017

We plan to slightly adapt the call for papers from CHESE 2016 at: https://www.microsoft.com/en-us/research/event/2nd-intl-code-hunt-workshop-on-educational-software-engineering-chese-2016/

The workshop will be open for the public to register and attend.

We will leverage typical distribution channels of the software engineering community to distribute the CFP (e.g., SE-World, ECOOP) besides those of the education community. In addition, we will also distribute the CFP to a set of researchers who have done work in the interactions of software engineering and education. In addition, we will leverage the SIGSOFT social media (Facebook, LinkedIn, Twitter, etc.), which one organizer Tao Xie is heavily involved in. Those who attended the past two CHESE workshops (about 15 attendees each) and those (about 20 attendees) in the earlier Microsoft Research Code Hunt Workshop 2015 will be emailed about this year's workshop.

The expected number of submissions is about 16, and the expected number of accepted papers is about 8. Such numbers are estimated based on the observations of CHESE 2016, CHESE 2015, and the Microsoft Research Code Hunt Workshop 2015.

The workshop results are expected to be used to build the community and foster collaborations among the attendees.

5.   Participation Preparation

At least one author of every accepted submission is expected to attend CHESE 2017 and present in person. Additionally, the workshop organizers may invite speakers to deliver keynote or invited presentations. The workshop will be open to the public. Anyone can register and attend the workshop. All attendees will be encouraged to also attend the main SPLASH event.

6.   Activities and Format

CHESE 2017 will last one day. The tentative plan is to go from 9:00am to 4:30pm. The actual timeline will be adjusted to be aligned with other SPLASH workshops taking place on the same day. From our experience, it is best when all workshops on the same shop share the same start, end, and break times.

Workshop activities include one invited keynote talk, a set of paper presentations. Depending on the size of the group, we may also include some of the following activities: a tool demonstration session, a panel discussion, a lighting talk session, a speed-dating type small group discussion session, or an open discussion session.

The lighting talk will involve up to 20 speakers. Each speaker can talk about an idea for up to two minutes. In the end, all attendees will vote for the best lighting talk using an online voting page.

The speed-dating type of small group discussion session will break all participants into groups of three or four. Each group will have ten minutes to discuss ideas of interest to them. Then everyone will be regrouped and start another ten-minute session. We plan to do a total of three rounds. This way, every participant will have an opportunity to get to know about ten other participants relatively well.

7.   Post-Workshop Activities

An online forum will be created for all participants to continue the discussion online after the physical workshop is over.

8.   Special Requirements

We do not expect any special requirements for CHESE 2017.