Report from the 2nd Int. Workshop on Education through Advanced Software Engineering and Artificial Intelligence (EASEAI '20)

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Abstract

In the past years, with the development and widespread of digital technologies, everyday life has been profoundly transformed. The general public, as well as specialized audiences, have to face an ever-increasing amount of knowledge and learn new abilities. The EASEAI workshop series addresses that challenge by looking at software engineering, education, and artificial intelligence research fields to explore how they can be combined. Specifically, this workshop brings together researchers, teachers, and practitioners who use advanced software engineering tools and artificial intelligence techniques in the education field and through a transgenerational and transdisciplinary range of students to discuss the current state of the art and practices, and establish new future directions. More information at `https://easeai.github.io`.

1. INTRODUCTION

In the past few years, the world has seen a tremendous digital transformation in all of its areas. In consequence, the general public needs to be able to acquire an ever-increasing amount of digital literacy and at least some level of proficiency with modern digital tools. While modern software engineering relies heavily on tools and development methodologies, those tools remain targeted towards experienced practitioners and computer science remains taught in a very classical way. In the same time, the rise of artificial intelligence allows more and more easily to provide automated support, like automated document review for dissertations and other kinds of exercises.

Following the success of the first EASEAI edition [6], we tried again to gather people from many different communities (software engineering, education science, artificial intelligence, machine learning, natural language processing, etc.) to explore how advanced software tools and techniques might be used as a catalyst for a better way to teach various types of students.

2. WORKSHOP FORMAT

As last year [6], the EASEAI workshop accepted original papers describing positions and new ideas, as well as new results and reporting on innovative approaches. Reviews were single-blinded and each submission has been reviewed by three members of the program committee. In total, we received 13 full submissions, out of which 5 papers were accepted for publication [7] and presentation. Additionally, the workshop accepted 2 presentations abstracts from previously published papers.

Unfortunately, due to the COVID-19 pandemic, the workshop had to be held virtually over Zoom. We divided the three hours timeslot in two sessions. Presentations were done live and discussion happened over Zoom mainly. The ESEC/FSE organization also prepared a dedicated channel on the conference Discord server that we used for general announcements to participants. The attendance was good with an average of 15 participants in the Zoom call, and a total of 21 distinct participants.

One of the main objectives of the workshop was to trigger discussions and exchanges of ideas between participants. Based on its success during the first edition [6], the workshop again assigned discussants to accepted papers to foster and trigger discussions. We asked each author to make a pre-print of their paper available, and to each discussant to prepare a one-slide summary to open the discussion after the presentation of the paper. The discussant system proved once again to be very very effective despite the virtual setting. The template[1] contains the following questions to answer:

- What are the main contributions of this paper?
- What do you like the most in this paper?
- What would be the next steps to expand the contributions further?
- How could you or your research contribute to the research presented in this paper?

3. SUMMARY OF CONTRIBUTIONS

The first session of the workshop opened with a presentation by Chklovski et al. [1] on a solution to engage families in technology through an artificial intelligence competition. During 10 weeks, families are coached to solve a local problem through the design and implementation of a solution based on artificial intelligence. Guran et al. [2] reported on their methodology to developer smart edutainment for smart education with a focus on preschoolers. They apply a user-centered design approach with preschoolers as co-designers and show how to integrate artificial intelligence to complete and support the capabilities of the users. Following, Vescan and Serban [8] described how they teach model checking to master students using an experiential learning approach. The approach had a positive impact on the engagement and motivation of the students following the lectures. Collard et al. closed the first part of the workshop with a presentation on how to teach artificial intelligence to K-12 through a role-playing game questioning the intelligence concept. The approach helps children to discover the core concepts of machine learning and improve their digital literacy.

The second-half of the workshop had three presentations. Niculescu et al. [5] showed how they evaluated the usage of agile and cyclic learning for teaching parallel and distributed computing. They found that cyclic learning is an effective and efficient method for

[1]Our discussant template is available at `https://easeai.github.io`.

teaching parallel and distributed computing, and that agile learning improves knowledge transfer. Motogna et al. [4] investigated the adaptation caused by the COVID-19 pandemic of student learning assessment to the context of online courses. Results show that in general, teachers try to maintain the quality of their teaching and reach the learning objectives by adapting their assessment methods with fewer exams and more project-related evaluations. Molnar et al. [3] closed the second half of the workshop by showing how static analysis tools can help to evaluate student coding assignments. After the introduction of such tools, students' code improved over the semester despite an increase in the assignment complexity. Static analysis tools would also help teaching staff to better focus their limited time.

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4. REFERENCES

[1] T. Chklovski, R. Jung, and K. Young. Engaging families in a 10-week, ai global competition. In *EASEAI '20*, EASEAI 2020, page 34–35. Association for Computing Machinery, 2020.

[2] A.-M. Guran, G. S. Cojocar, and L. S. Dioşan. Developing smart edutainment for preschoolers: A multidisciplinary approach. In *EASEAI '20*, EASEAI 2020, page 20–26. Association for Computing Machinery, 2020.

[3] A.-J. Molnar, S. Motogna, and C. Vlad. Using static analysis tools to assist student project evaluation. In *EASEAI '20*, EASEAI 2020, page 7–12. Association for Computing Machinery, 2020.

[4] S. Motogna, A. Marcus, and A.-J. Molnar. Adapting to online teaching in software engineering courses. In *EASEAI '20*, EASEAI 2020, page 1–6. Association for Computing Machinery, 2020.

[5] V. Niculescu, A. Sterca, and D. Bufnea. Agile and cyclic learning in teaching parallel and distributed computing. In *EASEAI '20*, EASEAI 2020, page 27–33. Association for Computing Machinery, 2020.

[6] B. Vanderose, B. Frenay, J. Henry, and X. Devroey. Report from the 1st Int. Workshop on Education through Advanced Software Engineering and Artificial Intelligence (EASEAI '19). *ACM SIGSOFT Software Engineering Notes*, 45(1):25–27, jan 2020.

[7] B. Vanderose, J. Henry, B. Frénay, and X. Devroey, editors. *EASEAI 2020: Proceedings of the 2nd ACM SIGSOFT International Workshop on Education through Advanced Software Engineering and Artificial Intelligence*. ACM, Virtual, USA, 2020.

[8] A. Vescan and C. Serban. Facilitating model checking learning through experiential learning. In *EASEAI '20*, EASEAI 2020, page 13–19. Association for Computing Machinery, 2020.