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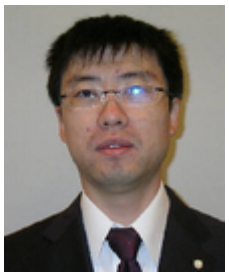

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Refereed academic journal

[aiguo-206-006-01:2015] Aiguo He. C Virtual Machine for Educational Program Visualization for Beginners. *IEICE trans.*, J98-D(10):1292–1300, 2015.

Educational program visualization needs special educational information in the target program. This article proposes a virtual-machine-based method to get this kind of information and a C virtual machine, CVM-EP(C Virtual Machine for Educational Purpose), which can be generally used as the core part of educational C PV(Program Visualization) systems. CVM-EP covers C grammar necessary for beginners and offers C program's runtime information for realize educational PV functions for enhancing student's understanding or finding bugs in their source codes. Experimental application systems of CVM-EP show that CVM-EP can be used to easily realize educational PV functions with high performance.

Refereed proceedings of an academic conference

[aiguo-206-006-02:2015] Hiroto Nakano Takenobu Kazuma Yu Yan, Kohei Hara and Aiguo He. A Method to Describe Student Learning Status for Personalized Computer Programming e-Learning Environment. In *Proceedings of 2016 IEEE 30th International Conference on Advanced Information Networking and Applications (AINA-2016)*, 2016.

Personalized e-learning environment is desirable in computer programming education. An important issue on personalized e-learning environment is to know the learning status of each student. This article proposes a method, SKP based Student Learning Status Description(SKP-based SLSD), to help instructors to know student individual's learning status in C programming. SKP-based SLSD focus on the syntactic knowledge called Syntax Knowledge Point(SKP) extracted from program source code. Firstly, it gathers all syntactic knowledge that should be learned by the students by extracting SKP from the source code in teaching materials or exercises' model answers. Then, for each student, it collects his learning activities on each SKP by extracting SKP from the source code the student have read or taught at lectures and wrote at exercises or tests. Finally, for each student, his understanding of each SKP is estimated based on the collected data. Student learning status can be described by his understanding of all SKPs. By SKP-based SLSD, the information used to describe student learning status can be more detail, be better-defined and better-handled by

computer systems. We have also conducted experiments and proved that SKP-based SLSD is effective and feasible.

[aiguo-206-006-03:2015] Yan Yu Takenobu Kazuma, Erika Yoshida and Aiguo He. PseudoHandWriting: New Approach for Oral Presentation to have Both Advantages of Slide and Handwriting. In *Proceedings of 2016 IEEE 30th International Conference on Advanced Information Networking and Applications Workshops (WAINA-2016)*, 2016.

Recently, Slideshow presentations such as research talking, demonstrations and lectures are performed heavily. On the other hand, handwriting ones are rarely performed. However, handwriting still have advantages and slideshow also have limitations. In this paper, we investigated merits and demerits of slideshow and handwriting lectures and proposed new oral presentation method that has both merits and explain the system and interface. Finally, we explain a simple experimentation and results we held.

Academic society activities

[aiguo-206-006-04:2015] Aiguo He, March 2015.

Session Chair, IEEE AINA 2016.

Advisor for undergraduate research and graduate research

[aiguo-206-006-05:2015] Nakano Hiroto. Graduation Thesis: A C Programming Education Support Environment with Program Visualization and Explanation Function, University of Aizu, 2015.

Thesis Advisor: Aiguo He

[aiguo-206-006-06:2015] Hiroki Chino. Graduation Thesis: A Method of Grammar Explanation for C Programming Beginners, University of Aizu, 2015.

Thesis Advisor: Aiguo He

[aiguo-206-006-07:2015] Erika Yoshida. Graduation Thesis: A Depth Sensor Based Gesture Recognition Method for PHW Support, University of Aizu, 2015.

Thesis Advisor: Aiguo He

[aiguo-206-006-08:2015] Yoshikazu Hasegawa. Graduation Thesis: A Web Service for C Programming Teaching Material Creation, University of Aizu, 2015.

Thesis Advisor: Aiguo He