Workshop Title:
International Workshop on **Mo**deling for **V**ehicle/IoT/Robotics System **E**ducation (MOVE)

Organizers and primary contact (name / affiliation / email):

- Kenji Hisazumi, Shibaura Institute of Technology, hisazumi@shibaura-it.ac.jp
- Harumi Watanabe, Tokai University, harumi-w@tsc.tokai-u.ac.jp

Abstract

As systems become more complex and sophisticated, development using models such as UML is playing an increasingly important role. In this situation, practical modeling education is essential. In order to practice practical education, realistic tasks are necessary. Also, the assignments must be attractive to students. However, it is difficult for teachers to prepare realistic and attractive tasks, and it is also difficult to operate the education itself.

In this workshop, we will share our experiences in modeling education using robots and other attractive teaching materials. We will contribute to the modeling education community by sharing our knowledge of issues, teaching materials, and operation methods. We welcome you to share your findings, especially through demos and videos.

In Japan, contests using robots have been held for more than 20 years, and over thousands of participants have been produced. Also, we have knowledge of promoting international modeling education in Asia Pacific. In the US, modeling education using robots for junior and senior high school students is also being conducted. However, there are not enough opportunities to share international knowledge on practical modeling education. These promoters will be invited as program committee members.

Motivation

- Objectives: To share our experiences in modeling education using robots and other attractive teaching materials.
- Intended audience: Teachers who are interested in modeling education, especially education using robots/IoT devices.

- Relevance (in particular to the MODELS community: It is important to share the knowledge of conducting MDD/modeling education in an attractive manner using practical targets.
- Context (any past events related to your workshop including related conferences, previous workshops, previous sessions, and previous experience of the current organizers): We conducted multiple modeling education for IoT and robotics systems such as ET Robot contest in Japan and APRIS Robot Challenge in Asia Pacific Area.
- Need (comments in favor of your application; if your workshop was at MODELS'20 or any of the former conferences, why is it useful to run it again?):

Organization

- Kenji Hisazumi

  Prof. Dr. Kenji Hisazumi is an associate professor at Shibaura Institute of Technology. He had received a Ph.D. degree from Kyushu University, Japan, in 2004. His research interests focus on software engineering for embedded systems. He is investigating model-driven development in which take into account uncertainty of projects, energy consumptions, etc. He is also studying Context-Oriented Programming Language for embedded systems. He has contributed education for model-driven development over ten years. He has founded APRIS Robot Challenge, a co-located event of Asia Pacific Conference on Robot IoT System Development and Platform (APRIS) in 2017. This robot challenge educates participants to apply model-driven development to control robots such as multi-copter. He is a chief model reviewer since 2017 and model reviewer of Embedded Technology Robot Contest (ETRobocon), Kyushu region since 2009.

- Harumi Watanabe

  Prof. Dr. Harumi Watanabe received Doctor of Engineering from School of Computing, Tokyo Institute of Technology, Tokyo, Japan. She is currently a

full professor of Tokai University. Also, She was a visiting professor of Hasso Plattner Institut, Germany[2020]. Her research interests are mainly in the areas of IoT, cyber-physical, and embedded system developments methods and their education. She is a chair of the Special Interest Group on Embedded Systems (SIG-EMB), Information Processing Society of Japan (IPSJ) (2016-2019). She has organized and managed several robot contests since 2004. Her students have participated in many robot contests and have received awards every year. She was the chair of the board of NHK robot contest, Tokai region (2006). NHK robot contest is broadcasting in NHK and is the most major contest related to robot developments. In inter-high school championships on electronics manufacturing Japan, she was the chair of the board of the award of Ministers of Education, Culture, Sports, Science and Technology (2007), and the chair of the board of the award of Minister of Health, Labour and Welfare Japan (2018). She has organized the Asia Pacific Conference on Robot IoT System Development and Platform (APRIS) (2018-). This conference organizes a robot contest for providing education of IoT system development.

Workshop program committee (expected)

- Apidet Booranawong (Prince of Songkla University, Thailand)
- Cortland Starret (OneFact, US)
- Marcel Taeumel (University of Potsdam, Germany)
- Midori Sugaya (Shibaura Institute of Technology, Japan)
- Natsuko Noda (Shibaura Institute of Technology, Japan)
- Naoyasu Ubayashi (Kyushu University, Japan)
- Nattha Jindapetch (Prince of Songkla University, Thailand)
- Nicolás Cardozo (Universidad de los Andes, Colombia)
- Shinpei Ogata (Shinshu University, Japan)
- Takeshi Ohkawa (Tokai University, Japan)
- Yu David Liu (State University of New York at Binghamton, US)

Would you be willing to merge your workshop with other workshops on a similar topic if this were a condition for hosting your workshop at MODELS?: No

Workshop format

- Planned deadlines
    - Paper submission deadline: July 21
    - Notification: Aug 20
    - Camera ready: Aug 27
- Intended paper format
    - For short papers, the limit is five (5) pages
    - For full papers, the limit is ten (10) pages
    - Demo, two (2) pages
- Evaluation process
    - All papers must be original. Submissions must not have been published previously and must not be simultaneously submitted or under review at any other refereed event or publication. The program committee will evaluate each contributed paper based on its relevance, significance, clarity, and originality.

2. Intended publication of accepted papers (printed proceedings or website)
    - printed proceedings
3. Intended workshop format (including duration, number of presentations, and planned keynotes)
    - Keynote: Takao Futagami (Toyo corporation), 20 years history of our modeling education for robots in Japan
    - Invited Talk: Masafumi Miwa (Tokushima University), Rescue Robot Context using Drones
    - Invited Talk: Yuki Tsuchitoi (Fuji Xerox), ET Robot Contest
    - 8 presentation / 30 min
4. How many participants do you expect (please make at least an educated guess)?
    - 30 participants

5. What kind of equipment do you need (e.g., data projector, computer, whiteboard)?
    - Remote: zoom, Miro
6. Additional material
    - Workshop web page (URL of the draft web page, if one exists)
        - http://www.roboemb.jp/move2021/
    - Draft Call for papers for the Workshop (a one-page Call for papers that you intend to send out if your workshop is accepted)
        - Next page

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We invite submissions related to (but not limited to) the following topics:

- Modeling education for
    - Robotics systems
    - IoT
    - Industry 4.0/Factory 4.0
    - Vehicle
- Curricula
- Teaching material
- Case
- Deployment

Schedule

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