

UMUAI Special Issue on Impact of Learner Modeling

Learner models are widely used to individualize instruction in intelligent tutors and other educational software such as recommender systems. Learner models are often evaluated by their ability to predict learner performance, and considerable research has gone into improving their predictive accuracy. However, improvements in predictive accuracy do not necessarily translate into improved learning gains, greater insight into learning, or better instruction.

For this special issue, we encourage submission of original papers on learner modeling with significant novel implications for learning or instruction. Learner modeling research can be characterized in a three dimensional space:

1. **The aspect of the learner that is modeled.** A partial list includes:
 - domain knowledge and reasoning
 - metacognition
 - creativity
 - affect
 - group participation
2. **The goal of learner modeling** – typically to improve some aspect of the learning experience, such as:
 - domain learning outcomes (e.g., gains, rate, depth of knowledge)
 - learner perseverance (e.g., task completion, session persistence, course retention)
 - metacognitive knowledge (e.g., help use, self-monitoring)
 - creativity
3. **The way the model is deployed to achieve the goal.** Two chief methods are:
 - Employing a model to guide the (re-design) of a learning environment by evaluating and optimizing the impact of particular features (e.g., comparing best-fitting learning-rate parameters in a model across different learning environment configurations to identify the configuration with the highest learning rate)
 - Individualizing learner experience at runtime (e.g., using the model to select problems or tutor actions)

For this special issue, we invite papers that report innovations along one or more of these three dimensions in the space of learner modeling, and make a compelling case that the proposed deployment of the proposed model will or already does achieve a significant goal. The “case” may vary by the phase of the research, and may rest on experimental evaluations, fitting historical data, simulations, or perhaps least compellingly, pure argument. In turn, we will evaluate each submission based on the novelty, importance, and credibility of the claimed impact on learner experiences or outcomes.

PAPER SUBMISSION & REVIEW PROCESS

Prospective authors must first submit an extended abstract to the special issue editors via EasyChair (<https://easychair.org/conferences/?conf=umuaiilm2015>). It must be at most 4 single-spaced pages long, not counting references, formatted with 12pt font and 1 inch margins.

The special issue editors will screen all submitted abstracts. Abstracts that do not pass this initial screening (i.e., abstracts deemed not to have a reasonable chance of acceptance) will not be considered further. Authors of abstracts that pass the initial screening will be invited to submit the full version of the paper using the formatting guidelines and submission instructions at http://www.umuai.org/paper_submission.html.

UMUAI is an archival journal that publishes mature and substantial research results on the (dynamic) adaptation of computer systems to their human users, and the role that a model of the system about the user plays in this context. Many articles in *UMUAI* are quite comprehensive and describe the results of several years of work. Consequently, *UMUAI* gives "unlimited" space to authors (as long as what they write is important). Authors whose paper exceeds 40 pages in journal format (including illustrations and references) are however requested to supply a short justification upon submission that explains why a briefer discussion of their research results would not be advisable.

TENTATIVE TIMELINE (see special issue webpage at for updates:

<http://www.umuai.org/Specials/UMUAI%20learner%20modeling%20special%20issue%20CFP.pdf>)

- June 1, 2015: Submission of title and abstract
- July 1, 2015: Notification of suitability of abstract
- October 1, 2015: Submission of full papers
- January 1, 2016: First round of review notifications
- March 1, 2016: Revisions of papers due
- June 1, 2016: Final notifications due
- July 1, 2016: Camera ready papers due
- September 1, 2016: Publication of special issue

GUEST EDITORS

Jack Mostow, Carnegie Mellon University, Pittsburgh, PA, USA

Email: mostow at cs.cmu.edu

www.cs.cmu.edu/~mostow

Albert Corbett, Carnegie Mellon University, Pittsburgh, PA, USA

Email: corbett at cmu.edu

pact.cs.cmu.edu/corbett.html

If you have any questions, please do not hesitate to ask the guest editors.