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Assistant Professor
Department of Learning Sciences and Educational Research
Core Faculty, Learning Sciences Cluster, Faculty Cluster Initiative
University of Central Florida
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EDUCATION

- 2013 – 2017 Doctorate of Philosophy: Psychology; Human Factors and Applied Cognition
North Carolina State University, Raleigh, NC
- Doctoral Dissertation: Using Multi-Channel Data to Assess, Understand, and Support Metacognition with Advanced Learning Technologies
- Advisor:* Dr. Roger Azevedo
- 2011 – 2013 Master of Arts: Educational Psychology; Learning Sciences Stream
McGill University, Montreal, Quebec, Canada
- Master's Thesis: Can the use of Metacognitive and Self-Regulated Learning Strategies be predicted by Learners' Levels of Prior Knowledge in Hypermedia-Learning Environments?
- Advisor:* Dr. Roger Azevedo
- 2008 – 2011 Bachelor of Arts: Psychology, Minors in Behavioral Science and Education, McGill University, Montreal, Quebec, Canada

ACADEMIC WORK EXPERIENCE

- August 2018 – Present **Assistant Professor**
University of Central Florida
Department of Learning Sciences and Educational Research
Core Faculty: Learning Sciences Cluster (Faculty Cluster Initiative)
- August 2017 – August 2018 **Postdoctoral Fellow**
Department of Psychology; Human Factors and Applied Cognition, North Carolina State University, Laboratory for the Study of Metacognition and Advanced Learning Technologies
Supervisor: Dr. Roger Azevedo

August 2013 – August 2017 **Graduate Research Assistant**

Department of Psychology; Human Factors and Applied Cognition,
North Carolina State University, Laboratory for the Study of
Metacognition and Advanced Learning Technologies

Supervisor: Dr. Roger Azevedo

August 2011 – July 2013 **Graduate Research Assistant**

Department of Educational and Counseling Psychology; Learning
Sciences, McGill University, Laboratory for the Study of
Metacognition and Advanced Learning Technologies

Supervisor: Dr. Roger Azevedo

PUBLICATIONS

BOOK CHAPTERS (12)

Azevedo, R., & **Taub**, M. (2020). The challenge of measuring processes and outcomes while learning from multiple representations with advanced learning technologies. In P. Van Meter, A. List, D. Lombardi, & P. Kendeou (Eds.), *Handbook of learning from multiple representations and perspectives* (pp. 532-553). Routledge.
<https://doi.org/10.4324/9780429443961>.

Taub, M., Azevedo, R., Bradbury, A. E., & Mudrick, N. V. (2020). Self-regulation and reflection during game-based learning. In J. L. Plass, R. E. Mayer, & B. D. Homer (Eds.), *Handbook of game-based learning* (pp. 239-262). MIT Press.

Azevedo, R., Mudrick, N. V., **Taub**, M., & Bradbury, A. E. (2019). Self-regulation in computer-assisted learning systems. In J. Dunlosky & K. Rawson (Eds.), *The Cambridge handbook of cognition and education* (pp. 587-618). Cambridge University Press.
<https://doi.org/10.1017/9781108235631>.

Azevedo, R., **Taub**, M., & Mudrick, N. V. (2018). Using multi-channel trace data to infer and foster self-regulated learning between humans and advanced learning technologies. In D. H. Schunk & J. A. Greene (Eds.), *Handbook of self-regulation of learning and performance (2nd ed.)*. (pp. 254-270). Routledge.

Mudrick, N. V., **Taub**, M., & Azevedo, R. (2018). MetaMentor: An interactive system that uses visualizations of students' real-time cognitive, affective, metacognitive, and motivational self-regulatory processes to study human tutors' decision making. In S. Craig (Ed.), *Tutoring and intelligent tutoring systems* (pp. 157-186). Nova Science Publishers.

Taub, M., Mudrick, N. V., & Azevedo, R. (2018). Strategies for designing advanced learning technologies to foster self-regulated learning. In R. Zheng (Ed.), *Strategies for deep learning with digital technology: Theories and practices in education* (pp. 137-170). Springer.

Azevedo, R., Mudrick, N. V., **Taub**, M., & Wortha, F. (2017). Coupling between metacognition and emotions during STEM learning with advanced learning technologies: A critical analysis, implications for future research, and design of learning systems. In T. Michalsky & C. Schechter (Eds.), *Self-regulated learning: Conceptualization, contribution, and empirically based models for teaching and learning* (pp. 1-18). Teachers College Press.

Azevedo, R., **Taub**, M., Mudrick, N. V., Millar, G. C., Bradbury, A. E., & Price, M. J. (2017). Using data visualizations to foster emotion regulation during self-regulated learning with advanced learning technologies. In J. Buder & F. Hesse (Eds.), *Informational environments: Effects of use and effective designs*. (pp. 225-248). Springer.

Azevedo, R., **Taub**, M., Mudrick, N., Farnsworth, J., & Martin, S. (2016). Using research methods to investigate emotions in computer-based learning environments. In P. Schutz & M. Zembylas (Eds.), *Methodological advances in research on emotion and education* (pp. 231-243). Springer.

Taub, M., Martin, S. A., Azevedo, R., & Mudrick, N. V. (2016). The role of pedagogical agents on learning: Issues and trends. In F. Neto, R. Souza, & A. Gomes (Eds.) *Handbook of research on 3-D virtual environments and hypermedia for ubiquitous learning* (pp. 362-386). IGI Global.

Azevedo, R., **Taub**, M., & Mudrick, N. (2015a). Technologies supporting self-regulated learning. In M. Spector, C. Kim, T. Johnson, W. Savenye, D. Ifenthaler, & G. Del Rio (Eds.), *The SAGE Encyclopedia of educational technology* (pp. 731-734). SAGE.

Azevedo, R., **Taub**, M., & Mudrick, N. (2015b). Think-aloud protocol analysis. In M. Spector, C. Kim, T. Johnson, W. Savenye, D. Ifenthaler, & G. Del Rio (Eds.), *The SAGE Encyclopedia of educational technology* (pp. 763-766). SAGE.

MANUSCRIPTS (14) (* *refereed manuscript*, + *invited manuscript*)

In Press / Published (12)

***Taub**, M., Sawyer, R., Smith, A., Rowe, J., Azevedo, R., & Lester, J. (2020). The Agency Effect: The Impact of Student Agency on Learning, Emotions, and Problem-Solving Behaviors in a Game-Based Learning Environment. *Computers & Education*, 147. <https://doi.org/10.1016/j.compedu.2019.103781>

***Taub**, M., Sawyer, R., Lester, J., & Azevedo, R. (2020). The Impact of Contextualized Emotions on Self-Regulated Learning and Scientific Reasoning during Learning with a Game-Based Learning Environment. *Journal of Artificial Intelligence in Education*, 30(1), 97-120. <https://doi.org/10.1007/s40593-019-00191-1>.

***Taub**, M., Azevedo, R., Rajendran, R., Cloude, E. B., Biswas, G., & Price, M. J. (in press/online first 2019). How are students' emotions related to the accuracy of their use of cognitive and metacognitive processes during learning with an Intelligent Tutoring System? *Learning and Instruction*.

- *Mudrick, N.V., Azevedo, R., & **Taub**, M. (2019). Integrating metacognitive judgements and eye movements using sequential pattern mining to understand processes underlying successful multimedia learning. *Computers in Human Behavior*, 96, 223-234.
<https://doi.org/10.1016/j.chb.2018.06.028>
- *Serenari, C., & **Taub**, M. (2019). Predicting the legitimacy of wolf recovery. *Wildlife Biology*, 2019(1). <https://doi.org/10.2981/wlb.00454>.
- ***Taub**, M., & Azevedo, R. (2019). How does prior knowledge influence eye fixations and sequences of cognitive and metacognitive SRL processes during learning with and intelligent tutoring system? *International Journal of Artificial Intelligence in Education*, 29(1), 1-28.
<https://doi.org/10.1007/s40593-018-0165-4>.
- *Wortha, F., Azevedo, R., **Taub**, M., & Narciss, S. (2019). Multiple negative emotions during learning with digital learning environments – Evidence on their detrimental effect on learning from two methodological approaches. *Frontiers in Psychology*, 10.
<https://doi.org/10.3389/fpsyg.2019.02678>.
- *Harley, J. M., **Taub**, M., Azevedo, R., & Bouchet, F. (2018). “Let’s set up some subgoals”: Understanding human-pedagogical agent collaborations and their implications for learning and prompt and feedback compliance. *IEEE Transactions on Learning Technologies*, 11, 54-66.
- ***Taub**, M., & Azevedo, R. (2018). Using sequence mining to analyze metacognitive monitoring and scientific inquiry based on levels of efficiency and emotional expressivity during game-based learning. *Journal of Educational Data Mining*, 10, 1-26.
- ***Taub**, M., Azevedo, R., Bradbury, A. E., Millar, G. C., & Lester, J. (2018). Using sequence mining to reveal the efficiency in scientific reasoning during STEM learning with a game-based learning environment. *Learning and Instruction*, 54, 93-103.
- ***Taub**, M., Mudrick, N. V., Azevedo, R., Millar, G. C., Rowe, J., & Lester, J. (2017). Using multi-channel data with multi-level modeling to assess in-game performance during gameplay with CRYSTAL ISLAND. *Computers in Human Behavior*, 76, 641-655.
- ***Taub**, M., Azevedo, R., Bouchet, F., & Khosravifar, B. (2014). Can the use of cognitive and metacognitive self-regulated learning strategies be predicted by learners’ levels of prior knowledge in hypermedia-learning environments? *Computers in Human Behavior*, 39, 356-367.

Under Review/In Preparation (2)

- ***Taub**, M., Vasquez, E., Bush, S., Parsons, C., Diaz, M., Anderson, K., Caton, J., Swihart, R., & Nass K. L. (under review). Examining Middle School Students’ Gameplay Actions and

Perceived Ease of Use with a Virtual Reality Chemistry Game. *Journal of Science Education and Technology*.

- *Wiedbusch, M., Kite, V., Yang, X., Park, S., Chi, M., **Taub**, M., & Azevedo, R. (in prep). Intelligent teacher dashboards that support students' self-regulated learning, engagement, and teachers' decision-making. *Frontiers in Education*.

REFEREED CONFERENCE PROCEEDINGS (26)

- *Cloude, E. B., **Taub**, M., Lester, J., & Azevedo, R. (2019). The role of achievement goal orientation on metacognitive process use in game-based learning. In S. Isotani, E. Millán, A. Ogan, P. Hastings, B. McLaren, & Luckin, R. (Eds.), *Proceedings of the 20th International Conference on Artificial Intelligence in Education (AIED 2019)* (pp. 36-40). Amsterdam, The Netherlands: Springer.

Azevedo, R., Mudrick, N. V., **Taub**, M., Lester, J., Taylor, R., Sawyer, R., Culberston, K., & Roberts, C. (2018). MetaMentor: A system designed to study, teach, train, and foster self-regulated learning for students and experts using their multimodal data visualizations. In R. Nkambou, R. Azevedo, & J. Vassileva (Eds.), *Proceedings of the 14th International Conference on Intelligent Tutoring Systems (ITS 2018)* (pp. 411-414). Amsterdam, The Netherlands: Springer.

[Winner of the best conference poster award]

- *Cloude, E. B., **Taub**, M., & Azevedo, R. (2018). Investigating the Role of Goal Orientation: Metacognitive and Cognitive Strategy Use and Learning with Intelligent Tutoring Systems. In R. Nkambou, R. Azevedo, & J. Vassileva (Eds.), *Proceedings of the 14th International Conference on Intelligent Tutoring Systems (ITS 2018)* (pp. 44-53). Amsterdam, The Netherlands: Springer.

Price, M. J., Mudrick, N. V., **Taub**, M., & Azevedo, R. (2018). The Role of Negative Emotions and Emotion Regulation on Self-Regulated Learning with MetaTutor. In R. Nkambou, R. Azevedo, & J. Vassileva (Eds.), *Proceedings of the 14th International Conference on Intelligent Tutoring Systems (ITS 2018)* (pp. 170-179). Amsterdam, The Netherlands: Springer.

Sinclair, J., Jang, E. E., Azevedo, R., Lau, C., **Taub**, M., & Mudrick, N. V. (2018). Changes in Emotion and Their Relationship with Learning Gains in the Context of MetaTutor. In R. Nkambou, R. Azevedo, & J. Vassileva (Eds.), *Proceedings of the 14th International Conference on Intelligent Tutoring Systems (ITS 2018)* (pp. 202-211). Amsterdam, The Netherlands: Springer.

Taub, M., Azevedo, R., & Mudrick, N. V. (2018). How Do Different Levels of AU4 Impact Metacognitive Monitoring During Learning with Intelligent Tutoring Systems? In R. Nkambou, R. Azevedo, & J. Vassileva (Eds.), *Proceedings of the 14th International Conference on Intelligent Tutoring Systems (ITS 2018)* (pp. 223-232). Amsterdam, The Netherlands: Springer.

- Taub**, M., Mudrick, N. V., Rajendran, R., Dong, Y., Biswas, G., & Azevedo, R. (2018). How are students' emotions associated with the accuracy of their note taking and summarizing during learning with ITSs? In R. Nkambou, R. Azevedo, & J. Vassileva (Eds.), *Proceedings of the 14th International Conference on Intelligent Tutoring Systems (ITS 2018)* (pp. 233-242). Amsterdam, The Netherlands: Springer.
- Liu, S., Mudrick, N. V., **Taub**, M., Azevedo, R., & Nam, C. S. (2017). Investigating eye movements, attention, and multitasking with MATB-II. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (pp. 863-865). Thousand Oaks, CA: SAGE.
- Azevedo, R., Millar, G. C., **Taub**, M., Mudrick, N. V., Bradbury, A. E., & Price, M. J. (2017). Using data visualizations to foster emotion regulation during self-regulated learning with advanced learning technologies: a conceptual framework. In X. Ochoa, I. Molenaar, & S. Dawson (Eds.), *Proceedings of the 7th International Conference on Learning Analytics & Knowledge: Understanding, Informing, and Improving Learning* (pp. 444-448). New York, NY: ACM.
- Bradbury, A. E., **Taub**, M. & Azevedo, R. (2017). The effects of agency on emotions and learning in game-based learning environments. In G. Gunzelmann, A. Howes, T. Tenbrink, & E. J. Davelaar (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society* (pp. 1666-1671). Austin, TX: Cognitive Science Society.
- Lallé, S., Conati, C., Azevedo, R., Mudrick, N. & **Taub**, M. (2017). On the influence on learning of student compliance with prompts fostering self-regulated learning. In X. Hu, T. Barnes, A. Hershkovitz, & L. Paquette (Eds.), *Proceedings of the 10th International Conference on Educational Data Mining* (pp. 120-127). Wuhan, China: Educational Data Mining Society.
- Lallé, S., **Taub**, M., Mudrick, N. V., Conati, C., & Azevedo, R. (2017). The impact of student individual differences and visual attention to pedagogical agents during learning with MetaTutor. In E. André, R. Baker, X. Hu, M. M. T. Rodrigo, & B. du Boulay (Eds.), *Proceedings of the 18th International Conference on Artificial Intelligence in Education (AIED 2017)—Lecture Notes in Computer Science 10331* (pp. 149-161). Amsterdam, The Netherlands: Springer.
- Lau, C., Sinclair, J., **Taub**, M., Azevedo, R., & Jang, E. E. (2017). Transitioning self-regulated learning profiles in hypermedia-learning environments. In X. Ochoa, I. Molenaar, & S. Dawson (Eds.), *Proceedings of the 7th International Conference on Learning Analytics & Knowledge: Understanding, Informing, and Improving Learning* (pp. 198-202). New York, NY: ACM.
- [Winner of the Best Short Paper Award].**
- Mudrick, N. V., **Taub**, M., & Azevedo, R. (2017). Do accurate metacognitive judgments predict successful multimedia learning? In G. Gunzelmann, A. Howes, T. Tenbrink, & E. J. Davelaar (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society* (pp. 2766-2771). Austin, TX: Cognitive Science Society.

Lallé, S., Mudrick, N. V., **Taub**, M., Grafsgaard, J. F., Conati, C., & Azevedo, R. (2016). Impact of individual differences on affective reactions to pedagogical agents scaffolding. In D. Traum & B. Swartout (Eds.), *Proceedings of the 16th International Conference on Intelligent Virtual Agents* (pp. 262-275). Amsterdam, The Netherlands: Springer.

[Winner of the Best Conference Paper Award]

Azevedo, R., Martin, S. A., **Taub**, M., Mudrick, N., Millar, G., & Grafsgaard, J. (2016). Are pedagogical agents' external regulation effective in fostering learning with intelligent tutoring systems? In A. Micarelli, J. Stamper, & K. Panourgia (Eds.), *Proceedings of the 13th International Conference on Intelligent Tutoring Systems—Lecture Notes in Computer Science 9684* (pp. 197-207). Amsterdam, The Netherlands: Springer.

[Winner of the Best Conference Paper Award]

Martin, S. A., Azevedo, R., **Taub**, M., Mudrick, N., Millar, G., & Grafsgaard, J. (2016). Are there benefits of using multiple pedagogical agents to support and foster self-regulated learning in an intelligent tutoring system? In A. Micarelli, J. Stamper, & K. Panourgia (Eds.), *Proceedings of the 13th International Conference on Intelligent Tutoring Systems—Lecture Notes in Computer Science 9684* (pp. 273-279). Amsterdam, The Netherlands: Springer.

Taub, M., & Azevedo, R. (2016a). Using eye-tracking to determine the impact of prior knowledge on self-regulated learning with an adaptive hypermedia-learning environment. In A. Micarelli, J. Stamper, & K. Panourgia (Eds.), *Proceedings of the 13th International Conference on Intelligent Tutoring Systems—Lecture Notes in Computer Science 9684* (pp. 34-47). Amsterdam, The Netherlands: Springer.

Taub, M., & Azevedo, R. (2016b). Using multi-channel data to assess, understand, and support affect and metacognition with intelligent tutoring systems. In A. Micarelli, J. Stamper, & K. Panourgia (Eds.), *Proceedings of the 13th International Conference on Intelligent Tutoring Systems—Lecture Notes in Computer Science 9684* (pp. 543-544). Amsterdam, The Netherlands: Springer.

Taub, M., Mudrick, N., Azevedo, R., Millar, G. Rowe, J., & Lester, J. (2016). Using multi-level modeling with eye-tracking data to predict metacognitive monitoring and self-regulated learning with Crystal Island. In A. Micarelli, J. Stamper, & K. Panourgia (Eds.), *Proceedings of the 13th International Conference on Intelligent Tutoring Systems—Lecture Notes in Computer Science 9684* (pp. 240-246). Amsterdam, The Netherlands: Springer.

Mudrick, N., Azevedo, R., **Taub**, M., & Bouchet F. (2015). Does the frequency of pedagogical agent intervention relate to learners' self-reported boredom while using multiagent intelligent tutoring systems? In D. C. Noelle, R. Dale, A. S. Warlaumont, J. Yoshimi, T. Matlock, C. D. Jennings, & P. P. Maglio (Eds.), *Proceedings of the 37th Annual Conference of the Cognitive Science Society* (pp. 1661–1666). Austin, TX: Cognitive Science Society.

Taub, M., Farnsworth, J. J., & Azevedo, R. (2015). Does prior knowledge reveal cognitive and metacognitive processes during learning with a hypermedia-learning system based on eye-

tracking data? In D. C. Noelle, R. Dale, A. S. Warlaumont, J. Yoshimi, T. Matlock, C. D. Jennings, & P. P. Maglio (Eds.), *Proceedings of the 37th Annual Conference of the Cognitive Science Society* (pp. 2999). Austin TX: Cognitive Science Society.

Mudrick, N., Azevedo, R., **Taub**, M., Feyzi, R., & Bouchet, F. (2014). A study of subjective emotions, self-regulatory processes, and learning gains: Are pedagogical agents effective in fostering learning? In J. Polman, E. Kyza, K. O'Neil, I. Tabak, W. Penuel, A. Jurow, K. O'Connor, T. Lee., & L. D'Amico (Eds.), *Proceedings of the International Conference of the Learning Sciences* (pp. 309–316). Boulder, CO: International Society of the Learning Sciences.

Taub, M., Azevedo, R., Bouchet, F., Clodfelter, E., & Mudrick, N. (2014). Can scaffolds from pedagogical agents influence effective completion of sub-goals during learning with a multi-agent hypermedia-learning environment? In J. Polman, E. Kyza, K. O'Neil, I. Tabak, W. Penuel, A. Jurow, K. O'Connor, T. Lee., & L. D'Amico (Eds.), *Proceedings of the International Conference of the Learning Sciences* (pp. 1052–1056). Boulder, CO: International Society of the Learning Sciences.

Khosravifar, B., Azevedo, R., Feyzi-Behnagh, R., **Taub**, M., Biswas, G., & Kinnebrew, J. S. (2013). Adaptive multi-agent architecture to track students' self-regulated learning. In G. Biswas, R. Azevedo, V. Shute, & S. Bull (Eds.), *Proceedings of the AIED 2013 Workshop on Scaffolding in Open-Ended Learning Environments*. Amsterdam, The Netherlands: Springer.

Azevedo, R., Landis, R. S., Feyzi-Behnagh, R., Duffy, M., Trevors, G., Harley, J., Bouchet, F., Burlison, J., **Taub**, M., Pacampara, N., Yeasin, M., Rahman, A. K. M. M., Tanveer, M. I., & Hossain, G. (2012). The effectiveness of pedagogical agents' prompting and feedback in facilitating co-adapted learning with MetaTutor. In S. A. Cerri, W. J. Clancey, G. Papadourakis, & K. Panourgia (Eds.), *Proceedings of the 11th International Conference on Intelligent Tutoring Systems. Lecture Notes in Computer Science, Vol. 7315* (pp. 212–221). Amsterdam, The Netherlands: Springer.

PAPER PRESENTATIONS (88) (**refereed paper*, +*invited presentation*)

*Yang, X., Zhou, G., **Taub**, M., Azevedo, R., & Chi, M. (2020, July). Student subtyping via EM-inverse reinforcement learning. Paper to be presented at the annual meeting of Educational Data Mining Society, Marrakesh, Morocco.

***Taub**, M., & Azevedo, R. (2020, April). How does content difficulty impact physiological responses and performance during learning with advanced learning technologies? Paper accepted for presentation at the annual meeting of the American Educational Research Association (AERA), San Francisco, CA (Conference canceled).

***Taub**, M., Sawyer, R., Lester, J., & Azevedo, R. (2019, August). Using multimodal data to detect self-regulatory processes during learning with a multimedia-system. Paper presented

at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Aachen, Germany.

- +**Taub, M.**, & Azevedo, R. (2019, July). Using sequence mining to analyze metacognitive monitoring and scientific inquiry based on levels of efficiency and emotional expressivity during game-based learning. Paper presented at the annual meeting of Educational Data Mining Society, Montreal, QC, Canada.
- +**Taub, M.**, & Azevedo, R. (2019, June). Investigating students' cognitive and metacognitive self-regulated learning during learning with a hypermedia-learning environment. Paper presented at the annual meeting of International Artificial Intelligence in Education Society, Chicago, IL.
- *Azevedo, R., **Taub, M.**, Price, M., & Cloude, E. B. (2019, April). *Adaptive Scaffolding with Pedagogical Agents during Self-Regulated Learning with an Intelligent Tutoring System*. Paper presented at the annual meeting of the American Educational Research Association (AERA), Toronto, ON, Canada.
- *Cloude, E. B., Price, M., Azevedo, R., **Taub, M.**, Mudrick, N. V., McKenzie, K., Burnett, M., & McArdle, M. (2019, April). *Can All Students Benefit from Virtual Reality? Evidence from Learning Outcomes and Process Data*. Paper presented at the annual meeting of the American Educational Research Association (AERA), Toronto, ON, Canada.
- *Cloude, E. B., **Taub, M.**, Price, M., Lester, J., Mudrick, N. V., & Azevedo, R. (2019, April). *Can Eye-Gaze Behaviors Predict Self-Reported Intrinsic Motivation Scores During Game-based Learning?* Paper presented at the annual meeting of the American Educational Research Association (AERA), Toronto, ON, Canada.
- *Price, M., **Taub, M.**, Cloude, E. B., & Azevedo, R. (2019, April). *How Negative Emotions Impact Performance and Metacognitive Processes Use During Learning with Intelligent Tutoring Systems*. Paper presented at the annual meeting of the American Educational Research Association (AERA), Toronto, ON, Canada.
- ***Taub, M.**, Azevedo, R., Price, M., Cloude, E. B., Rajendran, R., & Biswas, G. (2019, April). *How do Emotions Impact the Accuracy of Self-Regulated Learning during Learning with Advanced Learning Technologies?* Paper presented at the annual meeting of the American Educational Research Association (AERA), Toronto, ON, Canada.
- ***Taub, M.**, Sawyer, R., Lester, J., & Azevedo, R. (2019, April). *How do Contextual Emotions Differ for Self-Regulated Learning and Scientific Reasoning during Game-Based Learning?* Paper presented at the annual meeting of the American Educational Research Association (AERA), Toronto, ON, Canada.
- *Cloude, E. B., **Taub, M.**, & Azevedo, R. (2018, August). Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Zurich, Switzerland.

- *Mudrick, N. V., **Taub**, M., & Azevedo, R. (2018, August). *Do eye movements contribute to accurate metacognitive judgments during multimedia learning?* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Zurich, Switzerland.
- *Mudrick, N. V., **Taub**, M., Price, M. J., & Azevedo, R. (2018, August). *How do students' facial expressions predict their metacognitive judgments during multimedia learning?* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Zurich, Switzerland.
- *Price, M. J., **Taub**, M., Mudrick, N. V., & Azevedo, R. (2018, August). *The role of emotion regulation on self-regulated learning with MetaTutor.* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Zurich, Switzerland.
- ***Taub**, M., Asghar, A., Venkatesh, V., Azevedo, R., Huang, Y-S., Price, M., & Varela, W. (2018, August). *Pre- & in-service teachers' emotional and motivational SRL processes with hypermedia-based learning.* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Zurich, Switzerland.
- ***Taub**, M., Azevedo, R., & Lester, J. (2018, August). *How does eye tracking demonstrate students' metacognitive monitoring during game-based learning?* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Zurich, Switzerland.
- *Cloude, E. B., **Taub**, M., & Azevedo, R. (2018, June). *Investigating the role of goal orientation: Metacognitive and cognitive strategy use and learning with intelligent tutoring systems.* Paper presented at the 14th International Conference on Intelligent Tutoring Systems, Montreal, QC, Canada.
- *Price, M. J., Mudrick, N. V., **Taub**, M., & Azevedo, R. (2018). *The role of negative emotions and emotion regulation on self-regulated learning with MetaTutor.* Paper presented at the 14th International Conference on Intelligent Tutoring Systems, Montreal, QC, Canada.
- *Sinclair, J., Jang, E. E., Azevedo, R., Lau, C., **Taub**, M., & Mudrick, N. V. (2018). *Changes in emotion and their relationship with learning gains in the context of MetaTutor.* Paper presented at the 14th International Conference on Intelligent Tutoring Systems, Montreal, QC, Canada.
- ***Taub**, M., Azevedo, R., & Mudrick, N. V. (2018). *How do different levels of AU4 impact metacognitive monitoring during learning with intelligent tutoring systems?* Paper presented at the 14th International Conference on Intelligent Tutoring Systems, Montreal, QC, Canada.

- ***Taub**, M., Mudrick, N. V., Rajendran, R., Dong, Y., Biswas, G., & Azevedo, R. (2018). *How are students' emotions associated with the accuracy of their note taking and summarizing during learning with ITSs?* Paper presented at the 14th International Conference on Intelligent Tutoring Systems, Montreal, QC, Canada.
- *Azevedo, R., Mudrick, N. V., **Taub**, M., & Price, M. J. (2018). *External regulation by artificial agents: Can intelligent virtual humans impact learners' self-regulation during complex multimedia learning?* Paper presented at the annual meeting of the American Educational Research Association (AERA), New York, NY.
- *Azevedo, R., **Taub**, M., Mudrick, N. V., Bradbury, A. E., & Price, M. J. (2018, April). *Studying self-regulatory processes using multimodal trace data: What does the evidence reveal?* Paper presented at the annual meeting of the American Educational Research Association (AERA), New York, NY.
- *Azevedo, R., **Taub**, M., Mudrick, N. V., & Price, M. (2018, April). *The effectiveness of pedagogical agents' adaptive scaffolding on self-regulation during complex learning with an Intelligent Tutoring System.* Paper presented at the annual meeting of the American Educational Research Association (AERA), New York, NY.
- *Mudrick, N. V., **Taub**, M., Price, M. J., Azevedo, R., Lester, J., & Roberts, C. (2018, April). *How do students' facial expressions predict their metacognitive judgments during multimedia learning?* Paper presented at the annual meeting of the American Educational Research Association (AERA), New York, NY.
- ***Taub**, M., Azevedo, R., Bradbury, A. E., Mudrick, N. V., & Price, M. J.. (2018, April). *Using Sequence Mining to Measure Students' SRL and Scientific Reasoning during Learning with a Game-Based Learning Environment* Paper presented at the annual meeting of the American Educational Research Association (AERA), New York, NY.
- *Zhong, B., Qin, Z., Yang, S., Chen, J., Mudrick, N. V., **Taub**, M., Azevedo, R., & Lobaton, E. (2017, November-December). *Emotion recognition with facial expressions and physiological signals.* Paper to be presented at the annual IEEE Symposium Series on Computational Intelligence (IEEE SSCI), Honolulu, HI.
- *Liu, S., Mudrick, N. V., **Taub**, M., Azevedo, R., & Nam, C. S. (2017, October). *Investigating eye movements, attention, and multitasking with MATB-II.* Paper presented at the 61st International annual meeting of Human Factors and Ergonomics Society (HFES), Austin, TX.
- *Mudrick, N. V., **Taub**, M., Azevedo, R., & Lester, J. (2017, October). *Facial expressions of learner-centered emotions during learning with an intelligent virtual human.* Paper presented at the 7th International Conference on Affective Computing and Intelligent Interaction (ACII), San Antonio, TX.

- *Azevedo, R., Mudrick, N. V., **Taub**, M., Millar, G. C., Bradbury, A. E., & Price, M. J. (2017, August). *Examining cognitive, metacognitive, and affective processes during multimedia learning with an intelligent virtual human*. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Tampere, Finland.
- *Azevedo, R., **Taub**, M., Mudrick, N. V., Millar, G. C., Bradbury, A. E., & Price, M. J. (2017, August). *Measuring, analyzing, and inferring temporally unfolding self-regulatory processes from multimodal data*. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Tampere, Finland.
- *Mudrick, N. V., Azevedo, R., **Taub**, M., Millar, G. C., Price, M. J., Bradbury, A. E., & Grafsgaard, J. F. (2017, August). *Physiological indicators of critical affective processes during multimedia learning with a virtual human*. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Tampere, Finland.
- ***Taub**, M., Azevedo, R., Bradbury, A. E., Millar, G. C., Price, M. J., & Mudrick, N. V. (2017, August). *Using sequence mining to measure students' SRL and scientific reasoning during learning with a game-based learning environment*. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Tampere, Finland.
- ***Taub**, M., Mudrick, N. V., & Azevedo, R. (2017, August). *Measuring middle school students' metacognitive monitoring during science learning with SimSelf*. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Tampere, Finland.
- *Lallé, S., **Taub**, M., Mudrick, N., Conati, C., & Azevedo, R. (2017, June). *The impact of student individual differences and visual attention to pedagogical agents during learning with MetaTutor*. Paper presented at the 18th International Conference on Artificial Intelligence in Education (AIED), Wuhan, China.
- *Lallé, S., Conati, C., Azevedo, R., Mudrick, N., & **Taub**, M. (2017, June). *On the influence on learning of student compliance with prompts fostering self-regulated learning*. Paper presented at the 10th International Conference on Educational Data Mining (EDM), Wuhan, China.
- *Azevedo, R., Grafsgaard, J. F., **Taub**, M., Mudrick, N. V., Jang, E. E., Lau, C., & Sinclair, J. (2017, April). *Challenges in using data mining to identify robust indicators of cognitive, affective, and metacognitive self-regulatory processes from Trace data during learning with advanced learning technologies*. Paper presented at the annual meeting of the American Educational Research Association (AERA), San Antonio, TX.
- *Azevedo, R., **Taub**, M., Mudrick, N. V., Grafsgaard, J. F., Millar, A. C., & Price, M. (2017, April). *Understanding and reasoning about cognitive, metacognitive, and affective processes used during complex learning with advanced learning technologies*. Paper presented at the

annual meeting of the American Educational Research Association (AERA), San Antonio, TX.

- *Lau, C., Jang, E. E., Sinclair, J., Azevedo, R., & **Taub**, M. (2017, April). *Latent class profiling of self-regulated learning in MetaTutor: A technology-rich learning environment*. Paper presented at the annual meeting of the American Educational Research Association (AERA), San Antonio, TX.
- *Mudrick, N. V., **Taub**, M., Azevedo, R., & Price, M. J. (2017, April). *Does skin conductance response indicate metacognitive processes?* Paper presented at the annual meeting of the American Educational Research Association (AERA), San Antonio, TX.
- *Mudrick, N. V., Azevedo, R., **Taub**, M., Grafsgaard, J. F., Millar, A. C., Price, M. J., Lester, J., Rowe, J., Taylor, R., Smith, A., & Culbertson, K. (2017, April). *Can intelligent virtual humans impact the accuracy of learners' metacognitive monitoring during complex multimedia learning?* Paper presented at the annual meeting of the American Educational Research Association (AERA), San Antonio, TX.
- *Mudrick, N. V., Azevedo, R., & **Taub**, M. (2017, April). *Converging multi-channel trace data to explain relationships between cognitive, emotional, and metacognitive processes during learning*. Paper presented at the annual meeting of the American Educational Research Association (AERA), San Antonio, TX.
- ***Taub**, M., Mudrick, N. V., Azevedo, R., Millar, A. C., Rowe, J., & Lester, J. (2017, April). *Using eye-tracking and log-file data as indicators of metacognitive monitoring and cognitive learning strategies with game-based learning environments?* Paper presented at the annual meeting of the American Educational Research Association (AERA), San Antonio, TX.
- *Azevedo, A., Millar, G. C., **Taub**, M., Mudrick, N. V., Bradbury, A. E., & Price, M. J. (2017, March). *Using data visualizations to foster emotion regulation during self-regulated learning with advanced learning technologies: A conceptual framework*. Paper presented the 7th International Conference on Learning Analytics & Knowledge Conference (LAK), Vancouver, BC, Canada.
- *Lau, C., Sinclair, J., **Taub**, M., Azevedo, R., & Jang, E. E. (2017, March). *Transitioning self-regulated learning profiles in hypermedia-learning environments*. Paper presented at the 7th International Conference on Learning Analytics & Knowledge Conference (LAK), Vancouver, BC, Canada
- [Winner of the Best Short Paper Award].**
- *Mudrick, N., Azevedo, R., **Taub**, M., & Grafsgaard, J. (2016, November). *How do time and multimedia discrepancies influence students' learner-centered emotions?* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Online Measures of Learning Processes SIG, Oulu, Finland.

- ***Taub**, M., Azevedo, R., Rowe, J., & Lester, J. (2016, November). *Time vs. meaningful time: How do duration and fixation duration differentially impact using a monitoring tool during SRL and gameplay with a game-based learning environment?* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Online Measures of Learning Processes SIG, Oulu, Finland.
- *Lallé, S., Mudrick, N., **Taub**, M., Grafsgaard, J., Conati, C., & Azevedo, R. (2016, September). *Impact of individual differences on affective reactions to pedagogical agents scaffolding.* Paper presented at the annual meeting of the Intelligent Virtual Agents conference (IVA), Los Angeles, CA.
- [Winner of the Best Conference Paper Award]**
- *Azevedo, R., **Taub**, M., Mudrick, N., Martin, S. A., & Grafsgaard, J. (2016, August). *Measuring and supporting the dynamic interplay between self- and externally-regulated learning with advanced learning technologies.* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Nijmegen, The Netherlands.
- *Azevedo, R., **Taub**, M., Mudrick, N., Martin, S. A., & Grafsgaard, J. (2016, August). *Using adaptive scaffolding by animated pedagogical agents to improve self-regulation during complex learning: Evidence from multi-modal trace data.* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Nijmegen, The Netherlands.
- ***Taub**, M., Mudrick, N., & Azevedo, R. (2016, August). *The importance of regulatory flexibility in learning with advanced learning technologies.* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Nijmegen, The Netherlands.
- *Mudrick, N., **Taub**, M., & Azevedo, R. (2016, August). *Multimedia discrepancies and their influence on metacomprehension during multimedia learning.* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Nijmegen, The Netherlands.
- *Mudrick, N., **Taub**, M., & Azevedo, R. (2016, August). *Using eye-movements to understand metacomprehension during learning with multimedia discrepancies.* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Nijmegen, The Netherlands.
- ***Taub**, M., Mudrick, N., & Azevedo, R. (2016, August). *Using multi-level models to predict how metacognitive monitoring predicts performance assessment with MetaTutor.* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Nijmegen, The Netherlands.
- *Wortha, F., Azevedo, R., **Taub**, M., Mudrick, N., Martin, S. A., & Millar, G. C., & Narciss, S. (2016, August). *Judgements of learning during learning with hypermedia: How do they*

affect study time allocation and study behaviors? Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Nijmegen, The Netherlands.

- *Azevedo, R., Martin, S. A., **Taub**, M., Mudrick, N., Millar, G., & Grafsgaard, J. (2016, June). *Are pedagogical agents' external regulation effective in fostering learning with intelligent tutoring systems?* Paper presented at the 13th International Conference on Intelligent Tutoring Systems (ITS), Zagreb, Croatia.
[Winner of the Best Conference Paper Award]
- *Azevedo, R., Mudrick, N. V., **Taub**, M., Martin, S., Wortha, F., & Millar, G. (2016, June). *The coupling between metacognition and emotions during STEM learning with advanced learning technologies: A critical analysis and implications for future research.* Paper presented at the 2nd International Workshop on Affect, Meta-Affect, Data and Learning (AMADL 2016) at the 13th International Conference on Intelligent Tutoring Systems (ITS), Zagreb, Croatia.
- *Martin, S. A., Azevedo, R., **Taub**, M., Mudrick, N., Millar, G., & Grafsgaard, J. (2016, June). *Are there benefits of using multiple pedagogical agents to support and foster self-regulated learning in an intelligent tutoring system?* Paper presented at the 13th International Conference on Intelligent Tutoring Systems (ITS), Zagreb, Croatia.
- *Martin, S., Grafsgaard, J., Mudrick, N. V., **Taub**, M., & Azevedo, R. (2016, June). *On the feasibility of providing real-time adaptive support for motivation and emotion in intelligent tutoring systems.* Paper presented at the 2nd International Workshop on Affect, Meta-Affect, Data and Learning (AMADL 2016) at the 13th International Conference on Intelligent Tutoring Systems (ITS), Zagreb, Croatia.
- ***Taub**, M., & Azevedo, R. (2016a, June). *Using eye-tracking to determine the impact of prior knowledge on self-regulated learning with an adaptive hypermedia-learning environment?* Paper presented at the 13th International Conference on Intelligent Tutoring Systems (ITS), Zagreb, Croatia.
- ***Taub**, M., Mudrick, N., Azevedo, R., Millar, G. Rowe, J., & Lester, J. (2016, June). *Using multi-level modeling with eye-tracking data to predict metacognitive monitoring and self-regulated learning with Crystal Island.* Paper presented at the 13th International Conference on Intelligent Tutoring Systems (ITS), Zagreb, Croatia.
- *Wortha, F., Azevedo, R., **Taub**, M., Mudrick, N. V., Martin, S. A., Millar, G. C., and Narciss, S. (2016, April) *Emotion profiles: The importance of emotions during learning with a multi-agent hypermedia-learning environment.* Paper presented at the annual meeting of the American Educational Research Association (AERA), Washington, DC.
- *Azevedo, R., Mudrick, N., **Taub**, M., Martin, S. A., Farnsworth, J., Scholcover, F., Matalenas, L., & Williams, C. (2015, August). *Issues in capturing, analyzing, and inferring self-regulatory processes from multi-channel data.* Paper presented at the biennial meeting of the

European Association for Research on Learning and Instruction (EARLI), Limassol, Cyprus.

- *Azevedo, R., **Taub**, M., Mudrick, N., Martin, S. A., Farnsworth, J. (2015, August). *Monitoring and regulating emotions between humans and pedagogical agents during learning with MetaTutor*. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Limassol, Cyprus.
- ***Taub**, M., Azevedo, R., Mudrick, N., Martin, S. A., & Millar, G. C. (2015, August). *Using process data to examine self-regulatory processes during learning with MetaTutor*. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Limassol, Cyprus.
- ***Taub**, M., Azevedo, R., Lisk, S., Kabat, G., & Martin, S. A (2015, August). *Product vs. process: PA influence on time and use of SRL processes on relevant pages with MetaTutor*. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Limassol, Cyprus.
- +Azevedo, R., Mudrick, N., & **Taub**, M. (2015, April). *Scaffolding metacognitive processes using pedagogical agents during complex learning with MetaTutor*. Paper presented at the annual meeting of the American Educational Research Association (AERA), Chicago, IL.
- +Azevedo, R., **Taub**, M., & Mudrick, N. (2015, April). *A critical review of interdisciplinary methods used to examine the role of emotions and computer-based learning environments*. Paper presented at the annual meeting of the American Educational Research Association (AERA), Chicago, IL.
- +Azevedo, R., **Taub**, M., & Mudrick, N. (2015, April). *Modeling self-regulated learning with intelligent multi-agent learning technologies: Beyond cognition and metacognition*. Paper presented at the annual meeting of the American Educational Research Association (AERA), Chicago, IL.
- *Azevedo, R., Mudrick, N., **Taub**, M., Feyzi-Behnagh, R., & Bouchet, F. (2014, September). *Are pedagogical agents effective in scaffolding metacognitive processes during learning with MetaTutor?* Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Istanbul, Turkey.
- *Azevedo, R., **Taub**, M., Mudrick, N., Feyzi-Behnagh, R., & Bouchet, F. (2014, September). *The impact of pedagogical agents' scaffolding of metacognitive self-regulatory processes during learning with MetaTutor*. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Istanbul, Turkey.
- *Mudrick, N., Azevedo, R., **Taub**, M., & Bouchet, F. (2014, September). *How do pedagogical agents' SRL-prompts impact students' affect as they interact with intelligent tutoring*

systems? Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Istanbul, Turkey.

- ***Taub**, M., Azevedo, R., Mudrick, N., & Bouchet, F. (2014, September). *Sub-goal sequence matters: Determining the effects of sub-goal sequence on emotions during learning with hypermedia-learning environments*. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Istanbul, Turkey.
- +Mudrick, N., Azevedo, R., & **Taub**, M. (2014, June). *Considering the role of pedagogical agents in computer based learning environments*. Paper presented at the Social, Motivation, and Affect Dimensions of Learning through Social Interaction Workshop at the 11th International Conference of the Learning Sciences (ICLS), Boulder, CO.
- *Mudrick, N., Azevedo, R., **Taub**, M., Feyzi, R., & Bouchet, F. (2014, June). *A study of subjective emotions, self-regulatory processes, and learning gains: Are pedagogical agents effective in fostering learning?* Paper presented at the 11th International Conference of the Learning Sciences (ICLS), Boulder, CO.
- ***Taub**, M., Azevedo, R., Bouchet, F., Clodfelter, E., & Mudrick, N. (2014, June). *Can scaffolds from pedagogical agents influence effective completion of sub-goals during learning with a multi-agent hypermedia-learning environment?* Paper presented at the 11th International Conference of the Learning Sciences (ICLS), Boulder, CO.
- *Azevedo, R., Harley, J., Bouchet, F., Feyzi-Behnagh, R., **Taub**, M., Trevors, G., Duffy, M. (2013, September). *Using pedagogical agents to examine the role of self-regulatory processes during learning with MetaTutor*. Paper presented at the 18th biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Munich, Germany.
- *Azevedo, R., Harley, J., Bouchet, F., Feyzi-Behnagh, R., **Taub**, M., Trevors, G., Duffy, M. (September, 2013). *MetaTutor: An innovative technology environment to study and assess self-regulatory processes*. Paper presented at the 18th biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Munich, Germany.
- ***Taub**, M., & Azevedo, R., Bouchet, F., & Khosravifar, B. (2013, August). *Can prior knowledge adequately predict the use of metacognitive processes during hypermedia learning*. Paper presented at the 18th biennial meeting of the European Association for Research on Learning and Instruction (EARLI), Munich, Germany.
- +Azevedo, R., Feyzi-Behnagh, R., Harley, J., **Taub**, M., & Megill, C. (2012, November). *Using physiological data to analyze the temporal and dynamic nature of self-regulation during learning: Implications for the design of advanced learning technologies*. Paper presented at an invited symposium on Physiological Measures in Instructional Design Technology Research at the annual meeting of the Association for Educational Communications and Technology, Louisville, KY.

- *Harley, J. M., Bouchet, F., Feyzi-Behnagh, R., Mudrick, N., **Taub**, M., Carter, Papaioannou, N., Karabachian, L., Trevors, G., Pacampara, N., Min, H., Carsel, T., Yang, W., Stead, V., Agnew, L., Griscom, S., Segura, A., Wang, G., Azevedo, R., & Landis, R., (2013, April). *A multi-componential analysis of boredom during complex learning with intelligent multi-agent systems*. Paper presented at a Symposium on Interdisciplinary Approaches for Analyzing Data from Multiple Affective Channels with Computer-Based Learning Environments at the annual meeting of the American Educational Research Association (AERA), San Francisco, CA.
- *Harley, J. M., **Taub**, M., Bouchet, F., Henchey, J., & Azevedo, R. (2013, April). *Profiling learners' co-regulation patterns with a pedagogical agent in an intelligent tutoring system for learning about human biology*. Paper presented at the annual meeting of the American Educational Research Association (AERA), San Francisco, CA.
- *Azevedo, R., Bouchet, F., Feyzi-Behnagh, R., Harley, J., Trevors, G., Duffy, M., **Taub**, M., & Landis, R. S. (2012, September). *Using artificial intelligent pedagogical agents to examine the role of metacognitive processes during learning with MetaTutor*. Paper presented at the biennial meeting of the European Association for Research on Learning and Instruction (EARLI) Metacognition SIG, Milan, Italy.
- *Azevedo, R., Bouchet, F., Harley, J., Feyzi-Behnagh, R., Trevors, G., Duffy, M., **Taub**, M., Pacampara, N., Agnew, L., Griscom, S., Mudrick, N., Stead, V., & Yang, W. (2012, June). *MetaTutor: An intelligent multi-agent tutoring system designed to detect, track, model, and foster self-regulated learning*. Paper presented at the 11th International Conference on Intelligent Tutoring Systems (ITS), Crete, Greece.
- *Azevedo, R., Landis, R. S., Feyzi-Behnagh, R., Duffy, M., Trevors, G., Harley, J., Bouchet, F., Burlison, J., **Taub**, M., Pacampara, N., Yeasin, M., Rahman, A.K.M.M., Tanveer, M.I., & Hossain, G. (2012, June). *The effectiveness of pedagogical agents' prompting and feedback in facilitating co-adapted learning with MetaTutor*. Paper presented at the 11th International Conference on Intelligent Tutoring Systems (ITS), Crete, Greece.
- *Harley, J., **Taub**, M., Bouchet, F., & Azevedo, R. (2012, June). *A framework to understand the nature of co-regulated learning in human-pedagogical agent interactions*. Paper presented at the 11th International Conference on Intelligent Tutoring Systems (ITS), Crete, Greece.
- *Azevedo, R., Feyzi-Behnagh, R., Harley, J., Bouchet, F., & **Taub**, M. (2012, April). *Co-regulated learning between human and artificial pedagogical agents in the content of a multi-agent adaptive hypermedia environment*. Paper presented at a Symposium on Innovations in Researching Regulation of learning in Solo and Collaborative Tasks at the annual meeting of the American Educational Research Association (AERA), Vancouver, BC, Canada.

POSTER PRESENTATIONS (14) (**refereed paper*, +*invited presentation*)

- *Cloude, E. B., **Taub**, M., Lester, J., & Azevedo, R. (2019, June). *The role of achievement goal orientation on metacognitive process use in game-based learning*. Poster presented at the annual meeting of International Artificial Intelligence in Education Society, Chicago, IL.
- *Azevedo, R., Mudrick, N. V., **Taub**, M., Lester, J., Taylor, R., Sawyer, R., Culberston, K., & Roberts, C. (2018, June). *MetaMentor: A system designed to study, teach, train, and foster self-regulated learning for students and experts using their multimodal data visualizations*. Poster presented at the 14th International Conference on Intelligent Tutoring Systems, Montreal, QC, Canada.
[Winner of the best conference poster award]
- *Bradbury, A. E., **Taub**, M. & Azevedo, R. (2017, July). *The effects of agency on emotions and learning in game-based learning environments*. Poster presented at the 39th annual meeting of the Cognitive Science Society, London, UK.
- *Mudrick, N. V., **Taub**, M., & Azevedo, R. (2017, July). *Do accurate metacognitive judgments predict successful multimedia learning?* Poster presented at the 39th Annual Meeting of the Cognitive Science Society, London, UK.
- +**Taub**, M., & Azevedo, R. (2017, March). *Using Sequence Mining to assess Self-Regulated Learning and Scientific Inquiry based on Levels of Efficiency and Emotional Expressivity during Game-Based Learning*. Poster presented at the 12th Annual NC State Graduate Student Research Symposium, Raleigh, NC.
- ***Taub**, M., & Azevedo, R. (2016b, June). *Using multi-channel data to assess, understand, and support affect and metacognition with intelligent tutoring systems*. Poster presented at the Young Researchers' Track of the 13th International Conference on Intelligent Tutoring Systems, (ITS), Zagreb, Croatia.
- ***Taub**, M., Azevedo, R., Martin, S. A., Millar, G. C., & Wortha, F. (2016, April). *Aligning log-file and facial expression data to validate assumptions linking SRL, metacognitive monitoring, and emotions during learning with a multi-agent hypermedia-learning environment*. Structured poster presented at the annual meeting of the American Educational Research Association (AERA), Washington, DC.
- ***Taub**, M., Mudrick, N. V., Azevedo, R., Markhelyuk, M., & Powell, G. S. (2016, April). *Assessing middle school students' use of a metacognitive monitoring tool during learning with SimSelf*. Poster presented at the annual meeting of the American Educational Research Association (AERA), Washington, DC.
- *Mudrick, N., Azevedo, R., **Taub**, M., & Bouchet, F. (2015, July). *Does the frequency of pedagogical agents' intervention relate to learners' self-reported boredom while using multi-agent intelligent tutoring systems?* Poster presented at the 37th Annual Conference of the Cognitive Science Society, Pasadena, CA.

***Taub, M., Farnsworth, J. J., & Azevedo, R.** (2015, July). *Does prior knowledge reveal cognitive and metacognitive processes during learning with a hypermedia-learning system based on eye-tracking?* Poster presented at the 37th Annual Conference of the Cognitive Science Society, Pasadena, CA.

***Taub, M., Azevedo, R., Kabat, G., Martin, S., Lisk, S., & Mudrick, N.** (2015, April). *How do pedagogical agents impact how students deploy self-regulated learning strategies during learning with hypermedia?* Poster presented at the annual meeting of the American Educational Research Association, Chicago, IL.

[Winner of the Best Poster Award from the Studying and Self-Regulated Learning Special Interest Group (SIG) of AERA].

+**Taub, M., Mudrick, N., & Azevedo, R.** (2015, April). *Scaffolding learning with pedagogical agents in advanced learning technologies: Understanding the role of self- versus external-regulation.* Poster presented at the annual meeting of the American Educational Research Association (AERA), Chicago, IL.

*Pybus, L., **Taub, M., Clark, H., & Furlough, C.,** (2014, October). *More information may aid novice users: Usability testing and redesign of the Square Register App.* Poster presented at the annual meeting of the Human Factors and Ergonomics Society (HFES), Chicago, IL.

***Khosravifar, B., Azevedo, R., Feyzi-Behnagh, R., Bouchet, F., Harley, J., Duffy, M., Trevors, G., & Taub, M.** (2013, April). *Using intelligent multi-agent systems to model and foster self-regulated learning: A theoretically-based approach using Markov decision process.* Poster presented at the annual meeting of the American Educational Research Association (AERA), San Francisco, CA.

[Winner of the Best Poster Award from the Studying and Self-Regulated Learning Special Interest Group (SIG) of AERA].

DESIGN AND DEVELOPMENT OF COMPUTER-BASED LEARNING ENVIRONMENTS

2017-present **MetaDash**

Prior postdoctoral researcher contributing to an interdisciplinary project (PI: Roger Azevedo, UCF; Co-PIs: Min Chi in Computer Science and Soonhye Park in STEM Education, NCSU) involving the design, development, and evaluation of teacher dashboards they can use to monitor and track how their students engage in self-regulated learning during learning in the classroom. Funded by the National Science Foundation (NSF).

2017-present **CRYSTAL ISLAND: Reflect**

Prior postdoctoral researcher contributing to an interdisciplinary project (PI: James Lester, NCSU; Co-PI: Roger Azevedo, NCSU) involving the design, development, and evaluation of an embedded reflection tool to foster effective regulation during self-regulated learning, scientific reasoning, and microbiology learning during

gameplay with CRYSTAL ISLAND. Funded by the National Science Foundation (NSF).

- 2014–2018 **MetaTutor: Intelligent Virtual Humans**
Graduate research assistant contributing to an interdisciplinary project (PI: Roger Azevedo, NCSU; Co-PI: James Lester, NCSU) involving the design, development, and evaluation of an intelligent adaptive hypermedia system using intelligent virtual humans to model, trigger, and support the deployment of the key cognitive, metacognitive, and affective self-regulatory enhance STEM learning on college student. Funded by the National Science Foundation (NSF).
- 2013-2018 **CRYSTAL ISLAND – LEADS: A Game-Based Learning Environment for Microbiology**
Graduate research assistant contributing to an interdisciplinary project (PI: Roger Azevedo, NCSU; Co-PI: James Lester, NCSU) involving the design and evaluation of new experimental paradigms within a game-based learning environment that fosters self-regulated learning of cognitive, affective, metacognition, and motivational processes and scientific reasoning on college students as they solve a mystery related to microbiology. Funded by the funded by the Social Sciences and Humanities Research Council of Canada (SSHRC).
- 2012–2016 **SimSelf: A Hypermedia-Based Environment for Middle School Science**
Graduate research assistant contributing to an interdisciplinary project (PI: Dr. Gautam Biswas, Vanderbilt University; Co-PI: Dr. Roger Azevedo, NCSU) involving the design, development, and evaluation of an intelligent, multiagent system to model, scaffold, and foster middle-school students’ complex problem solving in science. Funded by the Institute of Education Sciences (IES).
- 2011–2014 **MetaTutor: An Intelligent Hypermedia System for Human Biology**
Graduate research assistant contributed to an interdisciplinary project (PI: Roger Azevedo, NCSU; Co-PI: Dr. Ronald Landis, Illinois Institute of Technology) involving the design, development, and evaluation of a web-based intelligent adaptive hypermedia system to (1) model key self-regulatory processes to foster students’ understanding of science and (2) provide adaptive scaffolding during learning about complex science topics. Funded by the National Science Foundation (NSF), the Social Sciences and Humanities Research Council of Canada (SSHRC), and the Natural Sciences and Engineering Research Council of Canada (NSERC).

GRANTS AND AWARDS

GRANTS

FUNDED:

- PI Examining the use of Self-Regulatory Processes during Game-Based Learning among Students with Cognitive or Learning Disabilities—University of Central Florida, Exploratory Research (ER1) (**\$50, 537 USD**):

Co-PI Enhancing Engagement and Conceptual Understanding of Fractions for Students with Learning Disabilities using the Model Mathematics Education Curriculum—National Science Foundation, Innovative Technology Experience for Students and Teachers (ITEST) (**\$1,391,542 USD**)

PI: Dr. Jessica Hunt, Co-PIs: Dr. Matthew Marino, Dr. Michelle Taub

Co-PI Tablecraft, A Next Generation Introductory STEM Platform—National Science Foundation, Small Business Innovation Research (SBIR) Phase I (**\$224,997 USD**)

PI: Guillaume Bailey, Co-PIs: Dr. Eleazar Vasquez, Dr. Michelle Taub, Dr. Sarah Bush

Co-PI Preparing Next Generation Special Education Leadership Scholars: LEAD NEXT—Office of Special Education Programs (OSEP) (**\$2,512,776**)

PI: Dr. Lisa Dieker, Co-PIs: Dr. Eleazar Vasquez, Dr. Michelle Taub

UNDER REVIEW:

Co-PI Augmenting Human Learning with Intelligent Virtual Humans Capable of Embodied Scaffolding using Real-Time Multimodal Data during Complex Problem Solving—National Science Foundation (Science of Learning and Augmented Intelligence) (**\$1,501,373**)

PI: Dr. Roger Azevedo, Co-PIs: Dr. Ryan P. McMahan, Dr. Christopher A. Randles, Dr. Michelle Taub

Co-PI Future Healthcare Technologies and Multidisciplinary Workforce Readiness—National Science Foundation (FW-HTF-P) (**\$149,999**)

PI: Dr. Sang-Eun Song, Co-PIs: Dr. Dawn O. Eckhoff, Dr. Hansen Mansy, Dr. Michelle Taub, Dr. Damla Turgut

Co-PI Examining Neurocognitive Function, Learning, Physiological and Mental Health Outcomes for Children with Cancer through a Musical Theater Intervention—National Endowment of the Arts (**\$149,996**)

PI: Dr. Megan Nickels, Co-PIs: Dr. Jennifer Tucker, Dr. Roger Azevedo, Dr. Michelle Taub

SUBMITTED (NOT FUNDED):

PI Examining the use of self-regulatory processes during game-based learning among students with disabilities—Spencer Foundation (**\$49,996**)

Co-PI Socio-Cognitive Artificial Intelligent Agents (SCAIA): A Cognitive-Centric Generative Approach to Modeling Spread of Information and Misinformation in Social Media—US Army Research Office (DoD, Multidisciplinary University Research Initiatives) (**\$6,250,000**)

PI: Dr. Ivan Garibay, Co-PIs: Dr. Stephen Fiore, Dr. William Rand, Dr. Michelle Taub, Dr. Alexander Mantzaris, Dr. Michelle Girvan

- Co-PI Collaborative Research: AccelNet: Accelerating Research on 21st Century Learning Harnessing Multimodal Data and Technologies (LearnNet) (**\$749,147**)
PI: Dr. Pasha Antonenko, Co-PIs: Dr. Andreas Keil, Dr. Roger Azevedo, Dr. Michelle Taub
- Co-PI Computer-Mediated Collaborative Learning in Mental Health Clinical Training—National Science Foundation (FW-HTF) (**\$1,443,058**)
PI: Dr. Eric Poitras, Co-PIs: Dr. Michelle Taub, Dr. Zachary Imel, Dr. Vivek Srikumar, Dr. Edward Hirsch
- Co-PI RAISE: C-Accel Pilot—Track B2 (National Talent Ecosystem): MetaLearn: An Intelligent, Immersive Collaborative Virtual System to Train Humans to be Flexible, Adaptive, and Successful across STEM Workforces—National Science Foundation (**\$1,000,000**)
PI: Dr. Roger Azevedo, Co-PIs: Dr. Charles Hughes, Dr. Ivan Garibay, Dr. Joseph LaViola II, Dr. Laurie Campbell, Dr. Megan Nickels, Dr. Liqiang Wang, Dr. Shunpu Zhang, Dr. Mindy Shores, Dr. Alexander Mantzaris, Dr. Michelle Taub
- Co-PI Cyberlearning for Work at the Human-Technology Frontier Grant Proposal: A Virtual Nature and Intelligent Tutoring System—National Science Foundation (Cyberlearning FW-HTF) (**\$749,999**)
PI: Dr. Maria Harrington, Co-PIs: Dr. Patrick Bohlen, Dr. Michelle Taub

AWARDS

- 2018 Best Poster Award: International Conference on Intelligent Tutoring Systems (ITS), Montreal, Quebec, Canada
- 2017 Travel (**\$2,300 CAD**): Learning Environments Across Disciplines (LEADS), funded by the Social Sciences and Humanities Research Council of Canada (SSHRC) to present at the biennial meeting of the European Association of Research on Learning and Instruction (EARLI) Tampere, Finland.
- 2017 Best Short Paper Award: Learning Analytics & Knowledge International Conference (LAK), Vancouver, British Columbia, Canada
- 2017 Travel (**\$830 CAD**): Learning Environments Across Disciplines (LEADS), funded by the Social Sciences and Humanities Research Council of Canada (SSHRC) to present at the annual meeting of the American Educational Research Association (AERA), San Antonio, Texas.
- 2016 Travel (**\$2,300 CAD**): Learning Environments Across Disciplines (LEADS), funded by the Social Sciences and Humanities Research Council of Canada (SSHRC) to present at the biennial meeting of the European Association of Research on Learning and Instruction (EARLI) Metacognition Special Interest Group (SIG), Nijmegen, The Netherlands.

- 2016 Best Conference Paper: International Conference on Intelligent Tutoring Systems (ITS), Zagreb, Croatia.
- 2016 Best Conference Paper: Intelligent Virtual Agents (IVA) International Conference, Los Angeles, CA.
- 2015 Travel (**\$1,673 CAD**): Learning Environments Across Disciplines (LEADS), funded by the Social Sciences and Humanities Research Council of Canada (SSHRC) to present at the biennial meeting of the European Association of Research on Learning and Instruction (EARLI) 2015, Limassol, Cyprus
- 2015 Best Poster Award: Studying and Self-Regulated Learning Special Interest Group of the American Educational Research Association (AERA), Chicago, IL
- 2013 Best Poster Award: Studying and Self-Regulated Learning Special Interest Group of the American Educational Research Association (AERA), San, Francisco, CA

TEACHING

INSTRUCTOR:

- Spring 2019 EME 6938: Research on Advanced Learning Technologies (Special Topics, Graduate)
- Spring 2020 EME 6938: Research on Advanced Learning Technologies (Special Topics, Graduate)
- Summer 2020 EDF 6155: Lifespan Human Development and Learning (Graduate)

INVITED:

- Spring 2019 EEX 7428: Personnel Preparation: Special Education
Introduction to the Learning Sciences
- Spring 2015 PSY 340: Human Factors and Ergonomics
Metacognition and Self-Regulated Learning: How is it related to Human Factors?
- Spring 2016 PSY 420: Cognitive Processes
An Overview of Advanced Learning Technologies used to Study Cognitive, Affective, Metacognitive, and Motivational Self-Regulated Learning Processes
- Spring 2017 PSY 420: Cognitive Processes
Overview of Multimodal Multichannel Data Methodological Tools and Analysis Techniques

INVITED TALKS

- Fall 2019 Writing about Writing Workshop Series, UCF's Department of Writing and Rhetoric

Self-Regulated Learning in the Composition Classroom (co-presented with Dr. Joel Schneier)

Summer 2019 Summer Lecture Series, sponsored by UCF's Cognitive Sciences Program
Don't feel bad about being frustrated: Understanding the relationship between emotion and self-regulated learning processes while interacting with an intelligent tutoring system

SERVICE ACTIVITIES

2020-2021 UCF College of Community Innovation and Education Sabbatical Program Committee

2018-present Search Committee Member, Learning Sciences Cluster (UCF Faculty Cluster Initiative)

2018-present Editorial Board Member: *Metacognition and Learning* journal

2015-2019 Junior Research (JURE) Assistant Coordinator of the European Association for Research on Learning and Instruction, Metacognition Special Interest Group (SIG)

2014-2018 Editorial Assistant for *Metacognition and Learning* journal

2014-2015 Student Outreach Co-Chair for the Student Chapter of the Human Factors and Ergonomics Society

2014-2015 Member of the Graduate Committee of the Studying and Self-Regulated Learning Special Interest Group (SSRL SIG) of the American Educational Research Association

REVIEWING ACTIVITIES

GRANT REVIEWER

2020 National Science Foundation

2020 Israel Science Foundation

JOURNAL REVIEWER

2020-present Ad-hoc Reviewer, *International Journal of Human-Computer Studies*

2019-present Ad-hoc Reviewer, *Journal of Research on Technology in Education*

2019-present Ad-hoc Reviewer, *Journal of the Learning Sciences*

2018-present Ad-hoc Reviewer, *International Journal of Artificial Intelligence in Education*

2018-present Ad-hoc Reviewer, *Instructional Science*

2017-present Ad-hoc Reviewer, *Computers & Education*

2017-present Ad-hoc Reviewer, *Educational Psychology*

2017-present Ad-hoc Reviewer, *Computers in Human Behavior*

- 2017-present Ad-hoc Reviewer, *Contemporary Educational Psychology*
2016-present Ad-hoc Reviewer, *IEEE Transactions on Learning Technologies*

CONFERENCE PROGRAM COMMITTEE MEMBER

- ITS 2018 14th International Conference on Intelligent Tutoring Systems
ITS 2019 15th International Conference on Intelligent Tutoring Systems
ITS 2020 16th International Conference on Intelligent Tutoring Systems
LAK 2018 8th International Learning Analytics & Knowledge Conference
LAK 2019 9th International Learning Analytics & Knowledge Conference
LAK 2020 10th International Learning Analytics & Knowledge Conference
UMAP 2019 27th ACM Conference on User Modeling, Adaptation, and Personalization
(Outstanding PC Member)
UMAP 2020 28th ACM Conference on User Modeling, Adaptation, and Personalization

CONFERENCE REVIEWER

- 2016-present *Annual conference of the American Educational Research Association*
2015-present *Biennial conference and biennial Metacognition Special Interest Group meeting of the European Association for Research on Learning and Instruction*

PROFESSIONAL ASSOCIATIONS/AFFILIATIONS

American Educational Research Association (AERA)

Division C: Learning and Instruction
Studying and Self-Regulated Learning Special Interest Group

European Association for Research on Learning and Instruction (EARLI)

Metacognition Special Interest Group
Online Measures of Learning Processes Special Interest Group

International Society of the Learning Sciences (ISLS)