Shiyan Jiang

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CURRENT EMPLOYMENT

Assistant Professor: Learning Design and Technology, College of Education, North Carolina State University, July 2019 – present. (Coordinator of Graduate Certificate in Learning Analytics; Future Interdisciplinary Fellow)

Graduate Faculty: Department of Computer Science, College of Engineering, North Carolina State University, May 2023 – present.

EDUCATION

Ph.D. in **Teaching and Learning (Specialization in Technology-enhanced STEM Education),** University of Miami (UM). 2018. Advisor: **Dr. Ji Shen**

M.S. in **Computer Science** (OMSCS), Georgia Institute of Technology.

B.S. in **Educational Technology**, East China Normal University.

PRIOR EMPLOYMENT

Post-doctoral Associate: Language Technologies Institute, School of Computer Science, Carnegie Mellon University, 2018-2019. Advisor: **Dr. Carolyn P. Rosé**

Graduate Researcher: Teaching and Learning, School of Education and Human Development, University of Miami, 2013- 2018. Advisor: **Dr. Ji Shen**

Research Internship: Information Sciences and Technology, Pennsylvania State University, Summer 2017. Advisor: **Dr. Mary Beth Rosson**

Data Visualization Developer Internship: Sun Sentinel, FL, Summer 2016.

Research Internship: University of California, Berkeley, Summer 2015. Advisor: **Dr. Marcia Linn**

Research Internship: Concord Consortium, MA, Summer 2014. Advisor: **Dr. Charles Xie**

RESEARCH

Interest

Interdisciplinary computing education
    AI (Artificial Intelligence) education
    Data science education
    Computer science education
Identity development
Technology-mediated learning
Learning analytics
Data visualization

Funded project (selected)

Project Collaborative Research: DTI: Integrating Language-Based AI Across the Curriculum to Create Diverse Pathways to AI-Rich Careers (**NSF ITEST** # 2241671; $ 385,921; PI); June 2023 – May 2026

- Develop and test a set of AI curriculum modules for math (5 hours), ELA (5 hours), history (5 hours), and an introductory module (2 hours);
- Investigate a set of research questions to advance our knowledge in student learning of AI across curriculum as well as teacher community formation in the AI domain.

Project Investigation of Students' Learning, Interest, and Career Aspirations In An Integrated Science and Artificial Intelligence Learning Environment (i-SAIL) (**NSF DRK-12** # 2405862; $ 2,999,966; co-PI); September 2024 – August 2028

- Develop and test i-SAIL, an integrated science and AI learning environment in which middle school students will be empowered to create AI solutions to solve science-focused real-world problems through block-based programming;
- Investigate the impact of creating such AI solutions in improving students' learning and cultivating interest and career aspirations.

Project Learning by Teaching with Constructive Tutee Inquiry for Robust Learning in Algebra (**NSF RITEL** # 2418586; $ 900,000; co-PI); August 2024 – July 2027

- Develop and implement a transformative technology in the form of an LLM-powered agent to enhance students' learning of algebra;
- Advance the understanding of how students learn connected knowledge in algebra and examine the impact of AI literacy on their interactions with AI technologies.

Project Collaborative Research: BCSER: Broadening the Use of Learning Analytics in STEM Education Research (**NSF ECR** # 2321128; $ 497,970; Co-PI); October 2023 – September 2026

- Create a modular curriculum that can be assembled into multiple distinct semester-long courses, incorporated into existing courses, or used individually for workshops;
- Support instructors to tailor their instruction for faculty and graduate students with different disciplinary backgrounds and incorporate the curriculum into their institutions.

Project Creating Diverse Data Science Learning Pathways (**NSF IUSE** # 2313644; $ 399,968; Co-PI); August 2023 – July 2025

- Implement the ADAPT (All-campus Data science through Accessible, Project-based Teaching and learning) model and develop resources for implementing the model;
- Research the development of robust data science identity through an intersectional lens.

Project Enhancing Undergraduate Learning About Biomechanics and Data Science Through Augmented Reality and Self-motion Data (**NSF IUSE** # 2013451; $ 600,000; Co-PI); September 2020 – August 2025

- Build an augmented learning platform to capture human motion data;
- Develop curriculum modules for undergraduate biomechanics and data science courses;
- Investigate student learning in integrated biomechanics and data science learning.

Project Building an Interdisciplinary Community of Entrepreneurial Graduate Students (**NC State Foundation Grant**; $ 25 K; PI); September 2023 – December 2024

- Create a community of graduate students from College of Education, College of Management, and Department of Computer Science that promotes interdisciplinary learning and collaboration.
- Foster innovation, creativity, and problem-solving skills among graduate students by positioning students as creators of technology-driven solutions and providing them with the resources and support needed to turn their ideas into reality.

(Finished) Project Narrative Modeling with StoryQ: Integrating Mathematics, Language Arts, and Computing to Create Pathways to Artificial Intelligence Careers (**NSF ITEST** # 1949110; $ 1,496,893; Co-PI); June 2020 – May 2024

- Create and test StoryQ, a web-based text mining and narrative modeling platform;
- Develop, implement, and test a Narrative Modeling with StoryQ curriculum;
- Investigate research questions related to student learning of AI and AI career interests.

(Finished) Project Learning Analytics in STEM Education Research Institute (LASER) (**NSF ECR** # 2025090; $ 993,150; Co-PI); September 2020 – August 2024

- Provide professional development for 150 early and mid-career STEM education researchers in Learning Analytics (LA);
- Investigate research questions related to developing inclusive LA communities and creating diverse pathways for LA.

(Finished) Project Institutional Opportunities to Belong: A Playbook for Putting Middle Schoolers' Policy Insights into Motion (**New Venture Fund**; $ 199,841; Co-PI); September 2023 – August 2024

- Design a learning environment where students develop instruments to collect data on their sense of belonging in different classrooms and create data visualizations reflecting their sense of belonging within the physical space;
- Support students in designing developmentally appropriate and culturally affirming learning spaces that address the belonging vulnerability of students at their school.

Proposals under review

Jiang, S. (PI). *CAREER: Fostering Interdisciplinary Identity Using a Role-based Approach*, NSF, $ 997,474.

Jiang, S., Barnes, T., & Xu, D. (PI). *Collaborative Research: DTI: CHALLENGE: Empowering Students in Critical and Human-centered AI Literacy to Learn Ethics through Narratives and GEnerative AI*, NSF, $ 605,551.

*Peer - reviewed journal article (*denotes student co-author; [#]denotes equal contribution)*

Jiang, S., McClure, J [*], Tatar, C. [*], Bickel, F. [*], Rosé, C., & Chao, J. (2024). Toward inclusivity in Artificial Intelligence: A comparative study of cognitive engagement between marginalized female students and peers. *British Journal of Educational Technology*.

Kahn, J., & **Jiang, S.** (2024). Leveraging epistemic data agency with data visualizations to bridge the gap between data trends and personal experiences. *Information and Learning Sciences.*

Tatar, C. [*], **Jiang, S.**, Rosé, C., & Chao, J. (2024). Exploring teachers' views and confidence in the integration of an Artificial Intelligence curriculum into their classrooms: A case study of curricular co-design program. *International Journal of Artificial Intelligence in Education,* 1-34.

Nocera, A., Newton, V.[*], & **Jiang, S.** (2024) "They created segregation with the economy": Using AI for a student-driven inquiry into redlining in the social studies classroom. *Theory & Research in Social Education*, 1-40.

Li, X. [*], **Jiang, S.,** Hu, Y., Feng, X., Chen, W., & Ouyang, F. (2024). Investigating the impact of structured knowledge feedback on collaborative academic writing. *Education and Information Technologies*, 1-29.

Jiang, S., McClure, J. [*], Mao, H. [*], Chen, J. [*], Liu, Y. [*], & Zhang, Y. (2023). Integrating machine learning and color chemistry: Developing a high-school curriculum towards real-world problem-solving. *Journal of Chemical Education.*

Ding, L., Li, T., **Jiang, S.**, & Gapud, A. (2023). Students' perceptions of using GenAI in a physics classroom as a virtual tutor: a ChatGPT case. *International Journal of Educational Technology in Higher Education, 20*(1), 63.

Jiang, S. & Wang, C. [*] (2023). Blurring the boundaries of current and future selves: Students' STEM identity development in a multimodal composing learning environment. *Learning, Media and Technology, 48*(4), 596-611.

Jiang, S., Huang, J., & Lee, H. (2023). Unpacking the complexities and nuances of technology-supported learning processes: Visualizing qualitative data. *Educational Technology Research and Development*, 1-19.

Jiang, S., Tang, H., Tatar, C. [*], Rosé, C, & Chao, J. (2023). High school students' data modelling practices: From modeling unstructured data to evaluating automated decisions. *Learning, Media and Technology, 48*(2), 350-368.

Jiang, S. (2023). Towards broadening participation: Investigating adolescents' participation trajectories in a collaborative multimodal composing learning environment. *Educational Technology & Society, 26*(3), 21-36.

Sanei, H. [*], Kahn, J., Yalcinkaya, R. [*], **Jiang, S.,** & Wang, C. [*](2023). Examining how students use interactive coding and socioscientific data to tell stories about climate change. *Journal of Science Education and Technology*, 1-17.

Jiang, S., Qian, Y., Tang., H., Yalcinkaya, R. [*], Rosé, C., Chao, J., & Finzer, W. (2022). Examining computational thinking processes in modeling unstructured data. *Education and Information Technologies*, 1-25.

[#]**Jiang, S.**, Lee, V. R., & Rosenberg, J. M. (2022). Data science education across the disciplines: Underexamined opportunities for K-12 innovation. *British Journal of Educational Technology, 53*(5), 1073-1079.

Jiang, S., Huang, X., Sung, S. H., & Xie, C. (2022). Learning analytics for assessing hands-on laboratory skills in science classrooms using Bayesian network analysis. *Research in Science Education*, 1-20.

Jiang, S., Nocera, A., Tatar, C. [*], Yoder, M. M. [*], Chao, J., Wiedemann, K., ... & Rosé, C. P. (2022). An empirical analysis of high school students' practices of modelling with unstructured data. *British Journal of Educational Technology, 53*(5), 1114-1133.

Moore, R. L., **Jiang, S.,** & Abramowitz, B. [*] (2022). What would the matrix do?: a systematic review of K-12 AI learning contexts and learner-interface interactions. *Journal of Research on Technology in Education*, 1-14.

Kahn, J., Peralta, M. [*], Rubel, L., Lim, V., **Jiang, S.,** & Herbel-Eisenmann, B. (2022). Notice, Wonder, Feel, Act, and Reimagine: A framework for social justice and equity in data science education. *Educational Technology & Society, 25*(4), 80-92.

Lim, V., Peralta, M. [*], Rubel, L., **Jiang, S.,** Kahn, J., & Herbel-Eisenmann, B. (2022) Keeping pace with innovations in data visualizations: A commentary for mathematics education in times of crisis. *ZDM–Mathematics Education*, 1-10.

Rubel, L, Herbel-Eisenmann, B., Peralta, M. [*], Lim, V., **Jiang, S.,** & Kahn, J. (2022). Intersectional feminism to reenvision mathematical literacies & precarity. *Research in Mathematics Education, 24*(2), 224-248.

Wang, Q., Rosé, C. P., Ma, N., **Jiang, S.,** Bao, H., & Li, Y. (2022). Design and application of automatic feedback scaffolding in forums to promote learning. *IEEE Transactions on Learning Technologies, 15*(2), 150-166.

Peng, Y., Li, Y., Su, Y., Chen, K., & **Jiang, S.** (2022). Effects of group awareness tools on students' engagement, performance, and perceptions in online collaborative writing: Intergroup information matters. *The Internet and Higher Education, 53*, 100845.

Jiang, S., Tatar, C. [*], Huang, X., Sung, S. H., & Xie, C. (2021). Augmented reality in science laboratories: Investigating high school students' navigation patterns and their effects on learning performance. *Journal of Educational Computing Research*, 07356331211038764.

Jiang, S., Shen, J., Smith, B. E., & Kibler, K. (2020). Science identity development: How multimodal composition mediates role-taking as scientist in a media-rich learning environment. *Educational Technology Research and Development.* 1-26.

Jiang, S. & Kahn, J. (2020). Data wrangling practices and collaborative interactions with aggregated data. *International Journal of Computer-Supported Collaborative Learning.* 1-25.

Kahn, J., & **Jiang, S.** (2020). Learning with large, complex data and visualizations: youth data wrangling in modeling family migration. *Learning, Media and Technology*, 1-16.

Shen, J., Chen, G., Barth-Cohen, L., **Jiang, S.,** & Eltoukhy, M. (2020). Connecting computational thinking in everyday reasoning and programming for elementary school students. *Journal of Research on Technology in Education*, 1-21.

Jiang, S., Shen, J., & Smith, B. E. (2019). Designing discipline-specific roles for interdisciplinary learning: two comparative cases in an afterschool STEM+ L programme. *International Journal of Science Education,* 1-24.

Jiang, S., Smith, B. E., & Shen, J. (2019). Examining how different modes mediate adolescents' interactions during their collaborative multimodal composing processes. *Interactive Learning Environments*, 1-14.

Smith, B. E., Shen, J., & **Jiang, S.** (2019; invited article). The science of storytelling: Middle schoolers engaging with socioscientific issues through multimodal science fictions. *Voices from the middle, 26*(4).

Barth-Cohen, L., **Jiang, S.**, Shen, J., Chen, G., & Eltoukhy M. (2018). Interpreting and navigating multiple representations as central to computational thinking in a robotics programming environment. *Journal for STEM Education Research, 1,* 119-147.

Sung, S., Shen, J., **Jiang, S.**, & Chen, G. (2017). Comparing the effects of dynamic computer visualization on undergraduate students' understanding of osmosis with randomized posttest-only control group design. *Research and Practice in Technology Enhanced Learning, 12*, 1-21.

Chen, G., Shen, J., Barth-Cohen, L., **Jiang, S.**, Huang, X., Eltoukhy, M. (2017). Assessing elementary students' computational thinking in everyday reasoning and robotics programming. *Computers & Education, 109*, 162-175.

Peer - reviewed conference proceeding (Selected)

McClure, J. * Smyslova, D. *, Am, H. *, & **Jiang, S.** (2024). Deductive Coding's Role in AI vs. Human Performance. Proceedings of *the 17th International Conference on Educational Data Mining*, 809--813. https://doi.org/10.5281/zenodo.12729958

McClure, J. *, **Jiang, S.**, Chao, J., Rosé, C., & Bickel, F. * (2024). Navigating cognitive engagement in AI-enhanced education: Lexical diversity and open-ended inquiry in journalism learning. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS)*.

McClure, J. *, Zheng, J., Bickel, F. *, **Jiang, S.**, Rosé, C. P., Chao, J., & Winling, L. (2024). Modeling with primary sources: An approach to teach data bias for artificial intelligence and machine learning education. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS).*

Mushi, D. *, Chao, J., **Jiang, S.**, Ellis, R., Rosé, C., & Wiedemann, K. (2024). Using biterm topic modeling to explore gender differences in secondary students' wonderings about AI concepts. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS)*.

Ellis, R., Chao, J., **Jiang, S.**, Rosé, C., & Wiedemann, K. (2024). Leveraging student choice and interest to design an engaging lesson about artificial intelligence. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS).*

Chao, J. & **Jiang, S.** (2024). Decoupling words and meanings: Secondary students' sense-making of text classification models. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS).*

Tatar, C. *, **Jiang, S.**, Chao, J., & Rosé, C. (2023). The impact of a technology-enhanced unit on high school students' understanding of Artificial Intelligence & machine learning. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS)*.

Tatar, C. *, McClure, J., Bickel, F., Ellis, R., Wiedemann, K., Chao, J., **Jiang, S.**, & Rosé, C. (2023). Examining high school students' self-efficacy in machine learning practices. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS).*

Chao, J., Finzer, W., Rosé, C., **Jiang, S.,** Ellis, R., Wiedemann, K., Tatar, C. *, & Fiacco, J. (2023). Teach Artificial Intelligence with StoryQ: a web-based machine learning and text mining

tool for k-12 students. *Proceedings of the 54th ACM Technical Symposium on Computer Science Education (SIGCSE)*.

McClure, J [*], Mushi, D[*], **Jiang, S.**, & Kellogg, S. (2023). The state of teaching about algorithmic bias and fairness in Learning Analytics programs. *Proceedings of the 13th International Conference on Learning Analytics and Knowledge (LAK)*.

Chao, J., Ellis, R., **Jiang, S.**, Rosé, C., Finzer, W., Tatar, C. [*], Fiacco, J., & Wiedemann, K., (2023). Exploring Artificial Intelligence in English Language Arts with StoryQ. *Proceedings of the 13th AAAI Symposium on Educational Advances in Artificial Intelligence (EAAI-23)*.

Olsen, J. & **Jiang, S.** (2022) Integrating student identity support in orchestration systems. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS)*.

Jiang, S., Desportes, K., & Bergner, Y. (2022). Agents, models, and ethics: Importance of interdisciplinary explorations in AI education. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS)*.

Yalcinkaya, R. [*], Sanei, H. [*], Wang, C. [*], Zhu, L. [*], Kahn, J. & **Jiang, S.** (2022). Remixing as a Key Practice for Coding and Data Storytelling. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS)*.

Tatar, C. [*], **Jiang, S.**, Chao, J., Wiedemann, K., Fiacco, J. [*], Finzer, W., & Rosé, C. (2022). Examining learning opportunities for integrating AI education in English Language Art classrooms. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS)*.

Rahimi, S., Fulwider, C. [*], **Jiang, S.**, & Shute, V. (2022). Predicting learning gains in an educational game using feature engineering and Machine Learning. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS)*.

[#]Rubel, L, Herbel-Eisenmann, B., **Jiang, S.**, Kahn, J., Lim, V., & Peralta, M. [*](2022). Storytelling with data in response to crisis: Shifting away from 'Maths of the Morgue'. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS)*.

Finzer, W., Chao, J., Rosé, C., & **Jiang, S.** (2022). StoryQ—An online environment for Machine Learning of text classification. *Proceedings of the 12th AAAI Symposium on Educational Advances in Artificial Intelligence (EAAI-22)*.

Akram, B., Yoder, S. [*], Tatar, C. [*], & **Jiang, S.** (2022). Towards an AI-infused interdisciplinary curriculum for middle-grade classrooms. *Proceedings of the 12th AAAI Symposium on Educational Advances in Artificial Intelligence (EAAI-22)*.

Chao, J., Finzer, W., Rosé, C., **Jiang, S.**, Yoder, M. [*], … Tatar, C. [*], & Wiedemann, K. (2022). StoryQ: A web-based Machine Learning and text mining Tool for K-12 Students. *Proceedings of the 53rd ACM Technical Symposium on Computer Science Education (SIGCSE)*.

Yoder, S. [*], Tatar, C. [*], Aderemi, I. [*], Boorugu, S. [*], **Jiang, S.**, & Akram, B. (2021). Gaining insight into effective teaching of AI problem-solving through CSEDM: A case study. *Proceedings of the 5th Educational Data Mining in Computer Science Education (CSEDM) Workshop*.

Tatar, C. [*], Yoder, M. [*], Coven, M. [*], Wiedemann, K., Chao, J., Finzer, W., **Jiang, S.**, & Rosé, C. (2021). Modeling unstructured data: Teachers as learners and designers of technology-enhanced Artificial Intelligence curriculum. *Proceedings of the Annual Meeting of international Society of the Learning Sciences (ISLS)*.

Jiang, S., Huang, X., Xie, C., Sung, S., & Yalcinkaya, R. [*](2020). Augmented scientific investigation: Support the exploration of invisible "fine details" in science via Augmented Reality. *Proceedings of the 19th ACM International Conference on Interaction Design and Children (IDC)*, London, UK.

Jiang, S. & Kahn, J. (2020). Data patterns and missing data: Complex issues in designs for learning with aggregated data in family migration context. *Proceedings of the 14th International Conference of the Learning Sciences (ICLS)*, Nashville, USA.

Jiang, S., Yang, K., Suvarna, C., Casula, P., Zhang, M., & Rosé, C. (2019). Applying rhetorical structure theory to student essays for providing automated writing feedback. *Proceedings of the Workshop on Discourse Relation Parsing and Treebanking 2019 (pp.* 163-168).

Jiang, S. & Kahn, J. (2019; nominee of best paper). Data wrangling practices and processes in modeling family migration narratives with big data visualization technologies. *Proceedings of the 13th International Conference of the Computer Supported Collaborative Learning (CSCL)*, Lyon, France.

Jiang, S., Shen, J., Smith, B., & Kibler, K. (2018). Examining science identity development in disciplinary role-taking multimodal composing environment. *Proceedings of the 13th International Conference of the Learning Sciences (ICLS)*, London, UK.

Smith, B., Shen, J., **Jiang, S.**, Chen, G., Hamaoui, M., & Torralba, J. (2018). Multimodal reflection: Adolescents remixing and sharing their experiences in an informal STEM+L academy. *Proceedings of the 13th International Conference of the Learning Sciences (ICLS),* London, UK.

Jiang, S., Shen, J., & Smith, B. (2016). Integrating science and writing in multimedia science fictions: Investigating student interactions in role-taking. *Proceedings of the 12th International Conference of the Learning Sciences (ICLS)*, Singapore.

Shen, J., Chen, G., Barth-Cohen, L., **Jiang, S.**, & Eltoukhy, M. (2016). Developing a language-neutral instrument to assess fifth graders' computational thinking. *Proceedings of the 12th International Conference of the Learning Sciences (ICLS)*, Singapore.

Jiang, S., Shen, J., Sun, Y. (2015). Conceptualizing, analyzing, and visualizing massive data on student engagement in MOOCs: A literature review. *Proceedings of the 11th International Conference of the Computer Supported Collaborative Learning (CSCL)*, Gothenburg, Sweden.

Book chapter

Jiang, S., Smith, B. E., & Shen, J. (2024). Our Story will be the Future: A Learner-centered Approach to Support Digital Multimodal Composing about the Climate Crisis. In *Youth Created Media on the Climate Crisis* (pp. 107-123). Routledge.

Fiacco, J [*], **Jiang, S.**, Adamson, D., & Rosé, C. (2023). Learning Analytics. In International encyclopedia of education (4rd ed.).

Shen, J., Smith, B. E., & **Jiang, S** (2020). Integrating multimodal composing technology (MCT) in interdisciplinary learning. In L. C. de Oliveira & A. M. Menda (Eds.), *English language teaching methods, approaches, and lessons*. Charlotte, NC: Information Age Publishing.

Shen, J., **Jiang, S.**, & Liu, O. L. (2015). Reconceptualizing a college science learning experience in the new digital era: A review of literature. In X. Ge, D. Ifenthaler, J.M. Spector (Eds.) *Full steam ahead: Emerging technologies for STEAM (pp. 61-79)*. New York: Springer.

Manuscripts under review

Jiang, S., Tatar, C. *, McClure, J. *, Bickel, F. *, Rosé, C, Chao, J., & Nocera, A. (major revision). Integrating Artificial Intelligence into history classrooms: Exploring student inquiry processes and implications for interdisciplinary learning. *Education and Information Technologies.*

Jiang, S., Yeter, Y., Jiang, R., Ding, X., Sung, H. S., & Xie, C. (under review). An empirical study on how science motivation drives learning space navigation and performance in remote labs. *Journal of Contemporary Educational Psychology.*

Tang, H., **Jiang, S.**, & Xie, C. (minor revision). Solarizing Your School: Engineering design in students' authentic epistemic practices of adopting renewable energy. *Journal of Science Education and Technology*.

Smith, B. E., **Jiang, S**., & Shen, J. (under review). Examining disciplinary role-taking in a Collaborative, Multimodal Learning (CML) environment. *Cognition and Instruction*.

Liu, S., Zhang, J., Wang, T., Xu, Z., Chao, J., & **Jiang, S.** (under review). Predicting student engagement in language-based AI curriculum: A hybrid BERT-MLP model approach. *British Journal of Educational Technology*.

Manuscripts in preparation

Jiang, S. (in preparation; **abstract accepted** for a special issue). Towards Closing the Gender Gap in AI: Insights from Learner Identity Profile Analysis. *Journal of Learning Sciences.*

Yang, M. & **Jiang, S.** (in preparation; **abstract accepted** for a special issue). Analyzing nontraditional students' ChatGPT interactions, engagements, and learning design performance: A learning analytics and mixed-methods approach. *British Journal of Educational Technology*.

Presentation (Selected)

Jiang, S., & Long, D. (2024, April). Integrating AI education in K–12 humanities curricula: Opportunities, challenges, design considerations, and promising solutions. To be presented at the annual conference of American Educational Research Association (AERA), Chicago.

Jiang, S. (2024 & 2023 & 2022, March). Data Visualization in Education. **Invited** virtual lecture, Research Methods course, Nanyang Technological University.

Wang, C. *, Sanei, H. *, Yalcinkaya, R. *, Kahn, J., **Jiang, S.,** & Cairo, A. (2023, April). Examining how students code with socioscientific data to tell stories about climate change. Presented at the annual conference of American Educational Research Association (AERA), Chicago.

Nocera, A., Newton, V. *, & **Jiang, S.** (2023, April). Bringing systemic racism into view: Using AI modeling for a student-driven inquiry into redlining in the social studies classroom. Presented at the annual conference of American Educational Research Association (AERA), Chicago.

Tatar, C. * & **Jiang, S**. (2022, April). An empirical analysis of high school students' understanding of AI through modeling texts. Presented at the annual conference of American Educational Research Association (AERA), Hybrid.

Tatar, C. * & **Jiang, S**. (2021, November). Designing an Artificial Intelligence curriculum with high school teachers and students. Presented at the Annual International Convention of the Association for Educational Communications and Technology (AECT), Online

Tang, H. & **Jiang, S.** (2021, November). Agency in engineering design: Understanding how students balance the tradeoff between criteria and constraints in authentic epistemic practices. Presented at the Annual International Convention of the Association for Educational Communications and Technology (AECT). (**Selected as a Featured Research in RTD**)

#Rubel, L. H., Peralta, L. M. *, Herbel-Eisenmann, **Jiang, S.**, B., Kahn, J., & Lim, V. Y. (2021, October). Theorizing Data Science Education: An Intersectional Feminist Perspective on Data, Power, and "Playing the Game". Presented at the 43rd Annual Conference of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA 2021).

Tatar, C. * & **Jiang, S.** (2021, April). Effects of Augmented Infrared Reality Technology on Learning Achievement: Case of High School Students. Presented at the annual conference of American Educational Research Association (AERA), Online.

#Peralta, L. M. *, Rubel, L. H., Herbel-Eisenmann, B., Kahn, J., Lim, V. Y., & **Jiang, S.** (2021, April). What's Going on in "What's Going on in This Graph?" Presented at the Annual Meeting of the American Education Research Association (AERA), Online.

Yalcinkaya, A. * & **Jiang, S.** (2020, November). Augmented Scientific Investigation: Making Invisible Visible to the Unaided Eye via Augmented Reality. Presented at the Annual International Convention of the Association for Educational Communications and Technology (AECT), Online

Jiang, S., & Kahn, J. (2020, April). Storytelling with data visualizations: Narrative patterns in modeling family migration narratives. Presented at the annual conference of American Educational Research Association (AERA), San Francisco, CA. (Cancelled)

Jiang, S. (2020, January). Data wrangling practices and learning with aggregated data in talk-in-interaction. **Invited** virtual seminar, Concord Consortium.

Jiang, S. (2020 & 2019, October). Visual analytics of learning data. **Invited** virtual lecture, Research Methods & Technologies course, University of Arizona.

Jiang, S., Shen, J., & Smith, B.E. (2019, April). Patterns and trajectories of an adolescent's participation during an integrated STEM and Digital Literacies program. Presented at the annual conference of American Educational Research Association (AERA), Toronto, Canada.

Kahn, J. & **Jiang, S**. (2019, April). Youth data wrangling and modeling family migration. Presented at the annual conference of American Educational Research Association (AERA), Toronto, Canada.

Smith, B. E., Kolovou, M., **Jiang, S.**, Ran, H., Torralba, J., & Shen, J. (2019, April). Multidimensional meaning-making: Adolescents leveraging visuals and sounds in their multimodal science fictions. Presented at the annual conference of American Educational Research Association (AERA), Toronto, Canada.

Chen, G., Shen, J., **Jiang, S.**, Barth-Cohen, L., & Eltoukhy, M. (2018, April). Linking elementary students' problem-solving process to computational thinking. Presented at the 2018 annual conference of American Educational Research Association (AERA), New York City, NY.

Jiang, S. & Cong, Q. (2017, September). Exploring the impact of students' academic usage of mobile devices on technostress and academic performance: A double-edged sword. Presented at the annual conference of Association for Learning Technology (ALT), Liverpool, UK.

Jiang, S., Smith, B.E., & Shen, J. (2017, April). Peer Interaction in multimodal composition: The story behind the scenes. Presented at the annual conference of American Educational Research Association (AERA), San Antonio, TX.

Barth-Cohen, L., **Jiang, S.**, Shen, J., Chen, G., & Eltoukhy, M., (2017, April). Elementary school students' computational thinking practices in a robotics-programming environment. Presented at the annual conference of American Educational Research Association (AERA), San Antonio, TX.

Shen, J., Smith, B., **Jiang, S.**, Kibler, K., Chen, G., & Irina, M. (2017, October). Examining middle school students' collaborative multimodal composing through disciplinary identity development. Presented at the Annual International Convention of the Association for Educational Communications and Technology (AECT), Jacksonville, FL.

Jiang, S., Smith, B.E., & Shen, J. (2016, October). Exploring multimodal composition in collaborative digital learning environments. Presented at the Annual International Convention of the Association for Educational Communications and Technology (AECT), Las Vegas, NV.

Jiang, S., Shen, J., & Smith, B. (2016, April). Assessing students' scientific literacy in collaborative science fiction writing. Presented at the 2016 Annual Meeting of the American Educational Research Association (AERA), Washington, D.C.

Sung, S., Shen, J., **Jiang, S.,** & Chen, G. (2016, April). The effect of including dynamic computer visualizations on assessing college students' interdisciplinary understanding of osmosis. Presented at the 2016 Annual Meeting of the American Educational Research Association (AERA), Washington, D.C.

Xie, C., Nourian, S., **Jiang, S.** (2015, April). Performance assessment of engineering design using process analytics based on CAD software. Presented at the National Association for Research in Science Teaching (NARST) Conference 2015, Chicago, IL.

Avalos, M. A., Bengochea, A., Malova, I., **Jiang, S.**, Carlo, M., & Augustin, J. (2014, December). Vocabulary instruction for English learners then and now: Do we have it right for the future? Presented at the 64th Annual Conference of the Literacy Research Association (LRA), Marco Island, FL.

Shen, J., **Jiang, S.**, Cheng, G., & Namdar, B. (2014, October). Designing the innovative Knowledge Organization System (iKOS) for science learning. Presented at the Annual International Convention of the Association for Educational Communications and Technology (AECT), Jacksonville, FL.

Invited Talk

Jiang, S. (2022). From Educational Technology to Learning Analytics: Broadening Access to Data Science. Vanderbilt University.

Jiang, S. (2022). From Educational Technology to Learning Analytics: Broadening Access to Data Science. University of Virginia.

Other

Tatar, C. [*], Chao, J., & **Jiang, S.** (2021). A technology-enhanced high school AI curriculum, published online.

Jiang, S. (2016). A technology-enhanced curriculum: Integrating STEM learning with data visualization, published online (www.wise.berkeley.edu; projectID = 18753).

TEACHING

Graduate Level

Instructor of ECI 587: Machine Learning in Education, North Carolina State University. Every Fall semester. Taught graduate student courses about the application of Machine Learning in educational contexts; **R & Python programming**. (core course in NC State Learning Analytics graduate certificate program)

Instructor of ECI 588: Text Mining in Education, North Carolina State University. Every Spring semester. Taught graduate student courses about the application of text mining in educational contexts; **R & Python programming**. (core course in NC State Learning Analytics graduate certificate program)

Instructor of ECI 519: Data Visualization in Education, North Carolina State University, Fall 2019 and Spring 2020. Taught courses about the application of data visualization in educational contexts; **D3.js programming**. (core course in NC State Learning Analytics graduate certificate program, Changed to **ECI 586** Introduction to Learning Analytics)

Instructor of ECI 709: Learning Sciences Seminar, North Carolina State University, Spring 2021. Taught courses in Learning sciences for doctoral students.

Instructor of ECI 510: Research Applications in Curriculum and Instruction, North Carolina State University, Fall 2020. Taught courses about introductions to educational research.

Invited speaker of SCS 11344: Machine Learning in Practice, Carnegie Mellon University, Fall 2018. Taught courses in Machine Learning for graduate students.

Undergraduate level

Invited speaker of TAL 543: Science Instruction in the Secondary School, UM, Spring 2016. Taught courses about STEM-related classroom technologies for pre-service teachers.

Teaching assistant of TAL 323: Science Instruction in the Elementary School, UM, Fall 2013/Fall 2014. Led class discussions and graded student assignments.

Teacher professional development

Instructor of educational technology workshops for in-service teachers, Summer 2018 (n = 12); Fall 2017 (n = 73); Spring 2016 (n = 30); Fall 2014 (n = 25). Trained and supervised in-service teachers to implement technology-enhanced STEM projects.

K-12 teaching

Instructor of multiple formal and informal programs associated with Project STEM+L, including

- Afterschool program for 5th-8th graders from Miami-Dade public schools (Summer 2018; Spring 2018; Fall 2017; Summer 2017; Fall 2015).

- Elective STEAM course for Henry S. West Laboratory School (Fall 2017; Fall 2016)

- Afterschool program for Ponce de Leon Middle School (Spring 2015)

Instructor of project First Star UM Academy, UM, Summer 2017. Taught digital composing to guide under-represented high schoolers to envision future professions.

DOCTORAL STUDENTS SUPERVISED

Doctoral dissertation (co-)chair

Qiuqing Li (expected 2027)

Franziska Bickel (expected 2026)

Yudi Prasetyo (expected 2026)

Yuru Zhang (expected 2025)

Doreen Mushi (expected 2025)

Jeanne McClure (graduated 2024; Postdoc at NC State)

Cansu Tatar (graduated 2023; Assistant Professor at Northern Illinois University)

Rabia Yalcinkaya (graduated 2023; Postdoc at NC State)

Cigdem Meral (graduated 2023; Researcher in Turkey)

Doctoral dissertation committees

Mustafa Ozcicek (College of Design, in progress)

Grace Wonaphotimuke (College of Design, in progress)

Hamid Sanei (Department of STEM Education, in progress)

Ming Cai (Department of ELPHD, in progress)

Jialin Cui (Department of Computer Science, in progress)

Mariam Elias (Department of STEM Education, in progress)

Duncan Culbreth (Department of TELS, in progress)

Nazia Alam (Department of Computer Science, in progress)

Machi Shimmei (Department of Computer Science, graduated 2024)

Fahmid Morshed Fahid (Department of Computer Science, graduated 2024)

Dan Carpenter (Department of Computer Science, graduated 2023)

Samim Mirhosseini (Department of Computer Science, graduated 2023)

Hanwen Wang (Department of Industrial and Systems Engineering, graduated 2023)

Lili Wang (Department of Teacher Education and Learning Sciences, graduated 2023)

Nischal Shrestha (Department of Computer Science, graduated 2022)

Gina Bai (Department of Computer Science, graduated 2022)

Andrew Emerson (Department of Computer Science, graduated 2022)

Ruth Akintunde (Department of Computer Science, graduated 2021)

Zhen Guo (Department of Computer Science, graduated 2021)

Li Li (Department of Industrial and Systems Engineering, graduated 2021)

SERVICE

Editorial Board (2023-2026): *Journal of Science Education and Technology*

Editorial Board (2024-2026): *Educational Technology Research & Development*

Technology Committee Co-chair (2023-peresent): *International Society of the Learning Sciences (ISLS)*

Special issue guest editor: Educational Technology Research and Development, Fostering AI Literacy: Preparing Students for an AI-Driven Future, 2024

Special issue guest editor: British Journal of Educational Technology, Data science education across the disciplines, 2021 (co-edit with Drs. Victor Lee and Josh Rosenberg)

Journal review: International Journal of Computer-Supported Collaborative Learning; Science Education; Computers & Education; Educational Technology Research & Development; Journal of Science Education and Technology; Journal of Educational Computing Research; Studies in Educational Evaluation; IEEE Internet of Things; Education and Information Technologies

NSF panel review: ITEST; DRK-12; AISL; IUSE

Conference review: ISLS; AERA; AECT

Workshop for AERA-ICPSR PEERS Data Hub, A LASER Focus on Understanding and Improving STEM Education, 2021 (co-present with LASER team)

Search committee member: Cluster Hires in Digital Transformation of Education at NC State, 2022; Executive Director of Data Science Academy at NC State, 2021

GLOBAL ENGAGEMENT

AI in Education. **Invited** talk by U.S. Embassy in Colombia, Educational Leaderships Summit, Bogota, Colombia, 2023

Looking beyond the hype: Interdisciplinary perspectives on AI Education for a sustainable future. **Invited** keynote speaker, Turkey, 2023

Data Visualization in Education. **Invited** virtual lecture, Research Methods course, Nanyang Technological University, Singapore, 2022; 2023; 2024

HONORS AND AWARDS

Interdisciplinary Future Fellow, North Carolina State University, 2023

Goodnight Early Career STEM Innovator, North Carolina State University, 2022

FI Scholar, Friday Institute for Educational Innovation, North Carolina State University, 2020

Catalyst Grant Award, North Carolina State University, 2020

Early Career Workshop Award, Association for Educational Communications and Technology, 2020

Early Career Workshop Award, International Society of the Learning Sciences, 2019

Bronze Award, International Serious Play, Treasure Key, 2017

Innovation Award in Learning Technology Design and Development, the 2nd e-ICON World Contest, South Korea, 2012

PROFESSIONAL MEMBERSHIP

International Society of the Learning Sciences (ISLS)

Association of Educational Communication and Technology (AECT)

American Educational Research Association (AERA)

Interaction Design and Children (IDC)