DR. NAMRATA SRIVASTAVA

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RESEARCH SUMMARY

Interdisciplinary researcher working at the intersection of learning analytics, HCI, and AI in education, with a focus on understanding and supporting students' learning processes. My research uses learning analytics, machine learning, and multimodal data to investigate students' learning strategies, self-regulation, and collaboration in digital and classroom environments. More recently, my work has focused on designing and evaluating human-centred AI technologies, including conversational agents and teacher-facing analytics dashboards, through classroom studies with K–12 students and teachers.

CURRENT EMPLOYMENT

Research Scientist June 2024 - Present
Department of Computer Science,
Vanderbilt University *United States*

· Conduct research with Prof. Gautam Biswas at the intersection of human-centered AI, learning analytics, and STEM+C education.

- **AI-supported learning environments:** Lead the design and evaluation of AI-powered pedagogical agents and teacher-facing analytics dashboards, including SciStory and LearnLens, to support inquiry-based learning and teaching in K–12 STEM+C classrooms.
- **Classroom research and evaluation:** Design and conduct classroom studies with middle-school students and teachers to investigate scientific inquiry, problem-solving, collaboration, and interactions with AI-supported learning environments.
- **Learning analytics and computational methods:** Develop analytical approaches using multimodal data (interaction logs, audio, video, and eye-tracking), machine learning, and temporal modeling to understand students' learning strategies, self-regulation, and responses to AI-generated feedback.
- **Research leadership and mentorship:** Contribute to federally funded research projects and grant proposals as PI, Co-PI, and Senior/Key Personnel. Provide research guidance and mentorship to PhD students working on STEM+C and AI-supported learning technologies.
- **Interdisciplinary collaboration and co-design:** Collaborate with teachers, learning scientists, and computer scientists to co-design, implement, and evaluate educational technologies in authentic classroom settings, including through the NSF-funded SPICE project.

Adjunct Assistant Professor Jan 2026 - Present
College of Connected Computing,
Vanderbilt University *United States*

· Instructor of record for DS-1000: *Data Science – How Data Shapes Our World*, responsible for course delivery, developing instructional materials and assessments, and teaching foundational concepts in data analysis, visualization, and statistical reasoning to over 130 undergraduate students across two semesters.

PREVIOUS APPOINTMENTS

Affiliate Research Fellow Oct 2023 - Oct 2026
Centre for Learning Analytics at Monash (CoLAM),
Monash University *Australia*

· Continued research collaborations with Monash faculty and students in learning analytics, educational data mining, and AI in education.
  - **Research collaboration and publications:** Co-authored nine publications with Monash collaborators in journals and conferences, including Computers & Education, Journal of Learning Analytics, BJET, and LAK.
  - **PhD supervision and student mentorship:** Co-supervised a PhD student who completed her doctorate in 2025, resulting in two joint publications. Currently mentoring a Master's student on the Teamwork Analytics Project with Dr. Sadia Nawaz.
  - **International research collaboration:** Explored opportunities to extend the CELLA project to K–12 schools in Nashville, USA, including preparing and submitting a school district research application.

Postdoctoral Researcher Nov 2023 - June 2024
Penn Center for Learning Analytics,
University of Pennsylvania *United States*

· Conducted research in educational data mining and learning analytics under the supervision of Prof. Ryan Baker.
  - **Predictive modeling and fairness:** Developed predictive models using large-scale MOOC data (SQL and Python) and examined model fairness across student demographic groups.
  - **Student engagement and mentorship:** Mentored PhD students developing machine learning detectors of boredom, confusion, and carelessness using intelligent tutoring system data.

Research Fellow Sep 2020 - Oct 2023
Centre for Learning Analytics at Monash (CoLAM),
Monash University *Australia*

· Conducted research in learning analytics, machine learning, and educational data mining under the guidance of Prof. Dragan Gasevic.
  - **Curriculum Analytics:** Led research analyzing over 7 million course registrations to investigate relationships between students' course choices, learning pathways, and academic performance. Developed a curriculum analytics dashboard and presented research findings and recommendations to Monash FIT for consideration in program-level decision-making and quality improvement.
  - **Self-regulated learning analytics:** Investigated students' learning strategies using multichannel behavioral data, including navigation logs, keystrokes, mouse movements, and eye-tracking. Applied sequence mining, process mining, and first-order Markov models to identify patterns of self-regulated learning.
  - **Educational predictive analytics:** Developed machine learning models using student information systems (Callista) and learning management systems (Moodle) to identify at-risk students and investigate feedback interventions to support student learning.

Machine Learning Research Intern Jul 2020 - Sep 2020
Adobe Research, Document Intelligence Lab *Remote*

· Developed a mobile web application using HTML5 and JavaScript to investigate how summaries could reduce the effects of interruptions during reading. Continued research collaboration on AI-supported reading technologies, contributing to publications at ACM CHI.

EDUCATION

PhD in Computer Science Nov 2016 - May 2021
School of Computing and Information Systems,
The University of Melbourne *Australia*

Disciplines: Data Science; Educational technology and computing; Human-computer interaction (HCI)
Advisors: James Bailey, Eduardo Velloso, Jason Lodge, and Sarah Erfani
Dissertation: Towards Sensor-based Learning Analytics: A Contactless Approach.
Funded by Melbourne Research Scholarship (MRS)

Master of Technology in Information Technology Aug 2013 - Jul 2015
Indian Institute of Information Technology - Allahabad (IIITA) *India*

Disciplines: Intelligent Systems
Advisor: U.S. Tiwary
Dissertation: Eye Movements Based Human Identification
Funded by Ministry of Health and Research Development (MHRD) Scholarship

Bachelor's in Computer Science and Engineering Jul 2009 - Jul 2013
Graphic Era University, Dehradun *India*

Supported by University Research Scholarship

RESEARCH GRANTS AND FUNDING

Supporting Teacher Customizations of an Integrated STEM+C Curriculum (SPICE 2.0) Aug 2024 - Jul 2028
National Science Foundation (NSF) *Senior/Key Personnel*

· Total Project Funding: $674,999. Collaborative research on supporting teacher customizations of integrated science, engineering, and computational thinking curricula.

SPICE 2.0 – Supplemental Funding Proposal Submitted 2026
National Science Foundation (NSF) *Senior/Key Personnel*

· Proposed Funding: $134,977. Supplemental funding proposal to extend the ongoing SPICE 2.0 project by exploring opportunities to integrate AI education into middle-school classrooms.

EngageAI Institute Completed Oct 2026
National Science Foundation (NSF) *Senior/Key Personnel*

· Total Institute Funding: $20 million. Contributed to research on AI-supported narrative-centered learning environments for STEM education. Designed conversational agents and conducted classroom studies to evaluate the SciStory learning environment.

How Should Students Use AI? A Game-Based Learning Environment Submitted 2026
National Science Foundation (NSF) *Principal Investigator*

· Proposed Funding: $747,133. Developing a game-based learning environment to support middle-school students' critical AI literacy, metacognitive awareness, and self-regulated learning.

Personalized Feedback through Adaptive Scaffolding Under Preparation
National Science Foundation (NSF) *Co-Principal Investigator*

· Research proposal under revision for resubmission, focused on using multimodal learning analytics and generative AI to support regulation in collaborative STEM+C learning environments.

RESEARCH STUDENT SUPERVISION AND MENTORSHIP

PhD Co-Supervision – Lin Li Completed 2025
Monash University *Australia*

· Co-supervised doctoral research on fairness and bias mitigation in educational predictive analytics, alongside Dr. Guanliang Chen, Prof. Dragan Gasevic, and Dr. Jackie Rong. The research resulted in two joint publications (LAK 2024 and BJET 2025).

Master's Research Mentorship – Ivan Zhuang Ongoing
Monash University *Australia*

· Mentoring a Master's student in collaboration with Dr. Sadia Nawaz on the Teamwork Analytics Project, providing guidance on research design, data analysis, and research development.

PhD Research Mentorship 2024 - Present
Vanderbilt University *United States*

· Provide ongoing research mentorship to two PhD students through weekly meetings, including guidance on research design, AI system development, data analysis, and preparation of research publications.

RECENT PUBLICATIONS (2022–2026)

2026

1. Cohn, C., Rayala, S., **Srivastava, N.**, Fonteles, J. H., Jain, S., Luo, X., Mereddy, D., Mohammed, N., and Biswas, G. (2026). A theory of adaptive scaffolding for LLM-based pedagogical agents. In *Proceedings of the AAAI Conference on Artificial Intelligence*, volume 40, pages 1757–1765

2. Davalos, E., Zhang, Y., **Srivastava, N.***, Thatigotla, Y., Salas, J. A., McFadden, S., Cho, S.-J., Goodwin, A., TS, A., and Biswas, G. (2026). WebEyeTrack: Scalable eye-tracking for the browser via on-device few-shot personalization. In *European Conference on Computer Vision*, pages 450–467. Springer Nature Switzerland Cham

3. Humburg, M., **Srivastava, N.**, Burriss, S., Kim, Y. J., Danish, J., Hmelo-Silver, C. E., Jain, S., Cohn, C., Timalsina, U., Glazewski, K., et al. (2026). "He's gonna say it's trash": Students' emotional experiences with AI feedback in collaborative scientific inquiry. In *Proceedings of the 19th International Conference on Computer-Supported Collaborative Learning-CSCL 2026*, pages 647–649. International Society of the Learning Sciences

4. Jain, S., **Srivastava, N.***, Prasanna, S. M., Cohn, C., Timalsina, U., Mohammed, N., and Biswas, G. (2026). Collaboration quality in computational modeling: Implications for middle-school STEM+C learning. In *Proceedings of the 19th International Conference on Computer-Supported Collaborative Learning-CSCL 2026*, pages 509–513. International Society of the Learning Sciences

5. Spikol, D., Nguyen, A., Wong, K., Lee Davis, R., Viberg, O., **Srivastava, N.**, Karp Gershon, S., Martinez-Maldonado, R., Worsley, M., Zhou, Q., et al. (2026). GenAI as Semantic Sensors for Collaborative Learning. In *International Conference on Artificial Intelligence in Education*, pages 66–73. Springer Nature Switzerland Cham

6. **Srivastava, N.**, Anton, G., Jain, S., Cohn, C., Timalsina, U., Mohammed, N., Chiu, J. L., and Biswas, G. (2026a). Feeling like a scientist, engineer, and computer scientist: Exploring students' disciplinary identity in an integrated STEM+C curriculum. In *Proceedings of the 20th International Conference of the Learning Sciences-ICLS 2026*, pages 3139–3141. International Society of the Learning Sciences

7. **Srivastava, N.**, Humburg, M., Burriss, S., Jain, S., Cohn, C., Kim, Y. J., Timalsina, U., Danish, J., Hmelo-Silver, C. E., Glazewski, K., et al. (2026b). The Role of LLM-Powered Conversational Agents in Supporting Inquiry in a Narrative-Centered Learning Environment: A Learning Analytics Study. In *Proceedings of the LAK26: 16th International Learning Analytics and Knowledge Conference*, pages 947–954

8. Zhang, J., Borchers, C., Cohn, C., **Srivastava, N.**, Snyder, C., Guo, S., TS, A., Mohammed, N., Noh, H., and Biswas, G. (2026). Using large language models to detect socially shared regulation of collaborative learning. In *Proceedings of the LAK26: 16th International Learning Analytics and Knowledge Conference*, pages 883–890

2025

9. Cohn, C., Fonteles, J. H., Snyder, C., **Srivastava, N.**, Campbell, D., Montenegro, J., Biswas, G., et al. (2025a). Exploring the design of pedagogical agent roles in collaborative STEM+C learning. In *Proceedings of the 18th International Conference on Computer-Supported Collaborative Learning-CSCL 2025*, pages 330–334. International Society of the Learning Sciences

10. Dai, W., Lin, J., Jin, F. J.-Y., Tsai, Y.-S., **Srivastava, N.***, Le Bodic, P., Gašević, D., and Chen, G. (2025). Learning analytics for early identification of at-risk students and feedback intervention. *Journal of Learning Analytics*, 12(3):102–125

11. Davalos, E., Zhang, Y., **Srivastava, N.***, Salas, J. A., McFadden, S., Cho, S.-J., Biswas, G., and Goodwin, A. (2025c). LLMs as educational analysts: Transforming multimodal data traces into actionable reading assessment reports. In *International Conference on Artificial Intelligence in Education*, pages 191–204. Springer Nature Switzerland Cham

12. Di Mitri, D., **Srivastava, N.**, Fernandez Nieto, G., Echeverria, V., Cobos, R., Tudur Sadashiva, A., Spikol, D., Wong, K. Y. C., Zhou, Q., and Cukurova, M. (2025). The second international workshop on multimodal artificial intelligence in education (MAIED'25). In *International Conference on Artificial Intelligence in Education*, pages 292–299. Springer Nature Switzerland Cham

13. Echeverria, V., Fernandez Nieto, G., Zhao, L., Palominos, E., **Srivastava, N.**, Gašević, D., Pammer-Schindler, V., and Martinez-Maldonado, R. (2025). A learning analytics dashboard to support students' reflection on collaboration. *Journal of Computer Assisted Learning*, 41(1):e13088

14. Flanagan, B., Lu, O. H. T., Shimada, A., **Srivastava, N.**, Yang, A. C. M., Tseng, H. T., Okubo, F., Anaya, E. D., and Ogata, H. (2025). The 8th Workshop on Predicting Performance Based on the Analysis of Reading and Learning Behavior (DCLAK25). In *CEUR Workshop Proceedings*, volume 3995, pages 88–89. CEUR-WS

15. Li, T., Yan, L., Iqbal, S., **Srivastava, N.**, Singh, S., Raković, M., Swiecki, Z., Tsai, Y.-S., Gašević, D., Fan, Y., and Li, X. (2025b). Analytics of self-regulated learning strategies and scaffolding: Associations with learning performance. *Computers and Education: Artificial Intelligence*, 8:100410

16. Li, L., **Srivastava, N.***, Rong, J., Guan, Q., Gašević, D., and Chen, G. (2025a). When and how biases seep in: Enhancing debiasing approaches for fair educational predictive analytics. *British Journal of Educational Technology*, 56(6):2478–2501

17. Li, Y., Raković, M., **Srivastava, N.***, Li, X., Guan, Q., Gašević, D., and Chen, G. (2025c). Can AI support human grading? Examining machine attention and confidence in short answer scoring. *Computers & Education*, 228:105244

18. Mehta, S., **Srivastava, N.***, Liu, X., Vanacore, K., and Baker, R. S. (2025). Do MOOC conversations matter? Investigating the role of social presence and course-relevant discussion in career advancement. In *Proceedings of the Twelfth ACM Conference on Learning@Scale*, pages 236–240

19. Jain, S., **Srivastava, N.***, Cohn, C., Mohammed, N., and Biswas, G. (2025). How do students do design? A data-driven approach for understanding students' engineering design behaviors. In *International Conference on Computers in Education*

20. **Srivastava, N.**, Burriss, S., Mohammed, N., Timalsina, U., Deweese, M., Eeds, A., et al. (2025a). Centering Youth Perspectives in Agent Design: Piloting an Activity to Scaffold Discussions on Ethics and Agents. In *International Conference on Computers in Education*

21. **Srivastava, N.**, Linsenmayer, E., Piacentini, M., and Biswas, G. (2025d). Evaluating Students' Scientific Inquiry Strategies in Large-Scale Digital Assessments. In *International Conference on Computers in Education*

22. **Srivastava, N.**, Healey, J., Jain, R., Liu, G., Ma, Y., Llana, B., Gašević, D., Dingler, T., and Wallace, S. (2025b). Priming at scale: An evaluation of using AI to generate primes for mobile readers. In *Proceedings of the Extended Abstracts of the CHI Conference on Human Factors in Computing Systems*, pages 1–10

23. Zhang, J., Baker, R. S., **Srivastava, N.**, Ocumpaugh, J., Mills, C., and McLaren, B. M. (2025). Carelessness Detection using Performance Factor Analysis: A New Operationalization with Unexpectedly Different Relationship to Learning. In *2025 7th International Conference on Computer Science and Technologies in Education (CSTE)*, pages 302–311. IEEE

24. Zhou, M., Danish, J., Fonteles, J. H., Davalos, E., Ayalon, E., Lane, A. C., **Srivastava, N.**, Steinberg, S., Anton, G., Enyedy, N., et al. (2025). Interaction analysis practice within computational trends: Promises and challenges. In *Proceedings of the 19th International Conference of the Learning Sciences-ICLS 2025*, pages 2644–2646. International Society of the Learning Sciences

2024

25. Baker, R. S., Hutt, S., Brooks, C. A., **Srivastava, N.**, and Mills, C. (2024). Open science and educational data mining: Which practices matter most? In *Proceedings of the 17th International Conference on Educational Data Mining*, pages 279–287

26. Davalos, E., **Srivastava, N.***, Zhang, Y., Goodwin, A., and Biswas, G. (2024). GazeViz: A web-based approach for visualizing learner gaze patterns in online educational environment. In *International Conference on Computers in Education*

27. Fonteles, J. H., **Srivastava, N.**, Davalos, E., TS, A., and Biswas, G. (2024). Designing an AI-enhanced timeline for monitoring multimodal interactions in embodied learning environments. In *International Conference on Computers in Education*

28. Li, T., Fan, Y., **Srivastava, N.**, Zeng, Z., Li, X., Khosravi, H., Tsai, Y.-S., Swiecki, Z., and Gašević, D. (2024b). Analytics of planning behaviours in self-regulated learning: Links with strategy use and prior knowledge. In *Proceedings of the 14th Learning Analytics and Knowledge Conference*, LAK '24, pages 438–449, New York, NY, USA. Association for Computing Machinery

29. Li, L., **Srivastava, N.***, Rong, J., Pianta, G., Varanasi, R., Gašević, D., and Chen, G. (2024a). Unveiling goods and bads: A critical analysis of machine learning predictions of standardized test per-

formance in early childhood education. In *Proceedings of the 14th Learning Analytics and Knowledge Conference*, LAK '24, pages 608–619, New York, NY, USA. Association for Computing Machinery

30. Nasiar, N., Baker, R. S., Andres, J. M. A. L., and **Srivastava, N.*** (2024). Same Learning Platform, Different Types of Research: A National-Level Analysis. In *Proceedings of the 17th International Conference on Educational Data Mining*, pages 814–820

31. **Srivastava, N.**, Nawaz, S., Tsai, Y.-S., and Gašević, D. (2024). Curriculum Analytics of Course Choices: Links with Academic Performance. *Journal of Learning Analytics*, 11(1):116–131

2023

32. Chen, X., **Srivastava, N.***, Jain, R., Healey, J., and Dingler, T. (2023). Characteristics of deep and skim reading on smartphones vs. desktop: A comparative study. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*, CHI '23, pages 1–14, New York, NY, USA. Association for Computing Machinery

33. Dingler, T., **Srivastava, N.**, and Wallace, S. (2023). Generative Primes and Summaries for Reading in Distractive Environments. In *MUM Workshops*

34. Nawaz, S., Kamei, T., and **Srivastava, N.** (2023). Nuanced growth patterns of students with disability. In *International Conference on Artificial Intelligence in Education*, pages 612–618. Springer Nature Switzerland Cham

35. Pozdniakov, S., Martinez-Maldonado, R., Tsai, Y.-S., **Srivastava, N.**, Liu, Y., and Gašević, D. (2023b). Single or multi-page learning analytics dashboards? Relationships between teachers' cognitive load and visualisation literacy. In *European Conference on Technology Enhanced Learning*, pages 339–355. Springer Nature Switzerland Cham

36. Pozdniakov, S., Martinez-Maldonado, R., Tsai, Y.-S., Echeverria, V., **Srivastava, N.**, and Gašević, D. (2023a). How do teachers use dashboards enhanced with data storytelling elements according to their data visualisation literacy skills? In *LAK23: 13th International Learning Analytics and Knowledge Conference*, pages 89–99

2022

37. Nawaz, S., **Srivastava, N.**, Yu, J. H., Khan, A. A., Kennedy, G., Bailey, J., and Baker, R. S. (2022b). How difficult is the task for you? Modelling and analysis of students' task difficulty sequences in a simulation-based POE environment. *International Journal of Artificial Intelligence in Education*, 32(2):233–262

38. Nawaz, S., Alghamdi, E. A., **Srivastava, N.**, Lodge, J. M., and Corrin, L. (2022a). Understanding the role of AI and learning analytics techniques in addressing task difficulties in STEM education. In *Artificial Intelligence in STEM Education: The Paradigmatic Shifts in Research, Education, and Technology*, pages 241–258. CRC Press

39. **Srivastava, N.**, Fan, Y., Raković, M., Singh, S., Jovanović, J., Van Der Graaf, J., Lim, L., Surendrannair, S., Kilgour, J., Molenaar, I., et al. (2022). Effects of internal and external conditions on strategies of self-regulated learning: A learning analytics study. In *LAK22: 12th International Learning Analytics and Knowledge Conference*, pages 392–403

Preprints

1. Burriss, S., Zhou, J., **Srivastava, N.**, Phillips, J., Barron, C., Cassell, K., Na, A., Humburg, M., Hu, T., Yang, B., et al. (2026). Agents of ViTAL: Ethics Missions–A Narrative-Centered Learning Environment with a Co-Designed Conversational Agent for Middle School AI Ethics. *arXiv preprint arXiv:2608.23580*

2. Cohn, C., Rayala, S., Snyder, C., Fonteles, J. H., Jain, S., Mohammed, N., Timalsina, U., Burriss, S. K., **Srivastava, N.**, Deweese, M., et al. (2025b). Personalizing Student-Agent Interactions Using Log-Contextualized Retrieval-Augmented Generation (RAG). *arXiv preprint arXiv:2505.17238*

3. Davalos, E., Salas, J. A., Zhang, Y., **Srivastava, N.**, Thatigotla, Y., Gonzales, A., McFadden, S., Cho, S.-J., Biswas, G., and Goodwin, A. (2025a). Beyond Instructed Tasks: Recognizing In-the-Wild Reading Behaviors in the Classroom Using Eye Tracking. *arXiv preprint arXiv:2501.18468*

4. Davalos, E., Zhang, Y., Jain, S., **Srivastava, N.**, Truong, T., Haque, N.-u., Van, T., Salas, J. A., McFadden, S., Cho, S.-J., et al. (2025b). Designing Gaze Analytics for ELA Instruction: A User-Centered Dashboard with Conversational AI Support. *arXiv preprint arXiv:2509.03741*

5. **Srivastava, N.**, Jain, S., Cohn, C., Mohammed, N., Timalsina, U., and Biswas, G. (2025c). LearnLens: An AI-enhanced dashboard to support teachers in open-ended classrooms. *arXiv preprint arXiv:2509.10582*

*Note: * indicates publications arising from research in which I mentored the lead student author.*

Full publication list: Google Scholar.

HONORS AND AWARDS

Invited Panelist for AIED Doctoral Consortium	*2026*
Judge's Choice Award – AIEd Forecasting	*2026*
LIVE Ignite Tech Development Grant (Vanderbilt University)	*2025*
Featured among trailblazing women researchers in STEM, (Herald Sun)	*2025*
Emerging Scholar Award (Society for Learning Analytics Research – SoLAR)	*2024*
Melbourne Research Scholarship (The University of Melbourne)	*2016–2021*
MHRD Scholarship (Indian Institute of Information Technology Allahabad)	*2013–2015*
University Research Scholarship (Graphic Era University)	*2009–2013*

PROFESSIONAL SERVICE AND ACADEMIC LEADERSHIP

Proceedings Co-Chair, AIED 2026 and 2027	*2026–2027*
Secretary and Executive Committee Member, SoLAR	*2024–2026*
Senior Program Committee Member, AIED	*2026*
Mentor, AIED Doctoral Consortium	*2026*
Co-Organizer, CROSSMMLA Workshop Series	*2022–Present*
Program Committee / Reviewer: CHI, LAK, AIED, JLA, Computers & Education	*2020–Present*

REFERENCES

Prof. Gautam Biswas	**Prof. Dragan Gašević**	**Prof. James Bailey**
Professor	Professor	Professor
Department of Computer Science	Academic Unit of Mathematics,	Department of Data Science and
Vanderbilt University	Science, and Technology	AI
Nashville	The University of Hong Kong	Monash University
United States	Hong Kong	Australia