

Tomohiro Nagashima

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ACADEMIC APPOINTMENTS

2022 – present	Junior Professor (tenure-track) on Technology-Enhanced Learning Department of Computer Science, Saarland University Saarland Informatics Campus Saarbrücken, Germany
2023 – present	Visiting Professor Institute for the Advancement of Higher Education, Hokkaido University Sapporo, Japan
2022 – present	Faculty Associate Harvard University Berkman Klein Center for Internet and Society Cambridge MA, USA
2022	Researcher German Research Center for Artificial Intelligence (DFKI) Saarbrücken, Germany

EDUCATION

2017 – 2022	Ph.D. in Human-Computer Interaction Carnegie Mellon University Human-Computer Interaction Institute, Pittsburgh, PA Advisor: Vincent Aleven Thesis: <i>Promoting Students' Self-Regulated Choices in Learning with Visual Representations</i> Committee: Geoff Kaufman, Amy Ogan, Martha W. Alibali (UW-Madison), & Timothy Nokes-Malach (Pitt)
2017 – 2020	M.S. in Human-Computer Interaction Carnegie Mellon University Human-Computer Interaction Institute, Pittsburgh, PA Advisor: Vincent Aleven
2016 – 2017	M.A. in Education (Learning, Design, and Technology) Stanford Graduate School of Education, Stanford, CA Advisor: Candace Thille
2010 – 2014	B.A. in Education International Christian University, Tokyo, Japan Advisor: Insung Jung

FELLOWSHIPS & AWARDS

2021	Presidential Fellowship , Carnegie Mellon University School of Computer Science
2021	Best Design Paper Nomination , International Society of the Learning Sciences (ISLS2021) for [C17]
2020	Fred Mulder Best Open Education Practice Award (€1.250) , Global OER Graduate Network (GOGN) for [C13] & [C14]
2020	Nova Southeastern Award for Outstanding Practice in Instructional Design (€72) , Association for Educational Communications and Technology (AECT) for [C13] & [C14]
2019	Doctoral Consortium Fellowship (€960) (Travel fellowship for LAK19), Society for Learning Analytics Research
2018	Virtually Connecting Scholarship (€480) (Travel scholarship for OpenEd18), Virtually Connecting
2018	Open Education Award of Excellence (Category: Open Courses), Open Education Consortium
2018	Open Education Award of Excellence Honorable Mention (Category: Open Policy), Open Education Consortium
2018	Creative Commons Summit 2018 Travel Scholarship (€670) , Creative Commons
2017	Creative Commons Summit 2017 Travel Scholarship (€670) , Creative Commons

2016	OER Research Fellowship (€3.840) Open Education Group
2016	Study Abroad Scholarship (€28.810) , Rotary International
2016	Merit-based Tuition Fellowship (€9.600) , Stanford Graduate School of Education
2013	Study Abroad Scholarship (€86.430) , Japan Business Federation
2011-12	Dean's List , International Christian University

EXTERNAL GRANTS AWARDED

2023 - 2025	<p>Data-driven pedagogical improvement for hybrid teaching Co-Principal Investigator Japan Society for the Promotion of Science (Grants-in-Aid for Scientific Research: B) with Daisuke Kaneko, Katsusuke Shigeta (PI), Toshiyuki Takeda, and Hidefumi Yagi JPY 14,200,000 (€98.079)</p>
2020 - 2023	<p>Developing data-informed OER improvement system Collaborating Researcher Japan Society for the Promotion of Science (Grants-in-Aid for Scientific Research: B) with Daisuke Kaneko, Katsusuke Shigeta (PI), Toshiyuki Takeda, and Hidefumi Yagi JPY 15,990,000 (€136.100)</p>
2015 – 2019	<p>Leveraging learning analytics to improve teaching and learning with MOOC Co-Principal Investigator Japan Society for the Promotion of Science (Grants-in-Aid for Scientific Research: B) with Daisuke Kaneko, Katsusuke Shigeta (PI), Toshiyuki Takeda, and Hidefumi Yagi JPY 13,260,000 (€122.900)</p>

PUBLICATIONS (an asterisk (*) denotes a mentored student)

Journal Publications

- J6. Chan, J. Y.-C., **Nagashima, T.**, & Closser, A. H. (accepted with minor revision). Participatory design for Cognitive Science: Examples from the Learning Sciences and Human-Computer Interaction. *Cognitive Science*.
- J5. Sha, H., Sugiura, M., **Nagashima, T.**, & Shigeta, K. (in press). Relations between participation in collaborative learning and learning outcomes in online learning.
- J4. **Nagashima, T.** & Hrach, S. (2021). Motivating factors among university faculty for adopting Open Educational Resources: Incentives matter. *Journal of Interactive Media in Education*, 1(19), 1-10. [\[pdf\]](#)
- J3. Yang, K., **Nagashima, T.**, *Yao, J., Williams, J. J., Holstein, K., & Aleven, V. (2021). Can crowds customize instructional materials with minimal expert guidance?: Exploring teacher-guided crowdsourcing for improving hints in an AI-based tutor. *ACM Conference on Computer-Supported Collaborative Work and Social Computing (CSCW2021)*. [\[pdf\]](#)
- J2. Shigeta, K., Yagi, H., **Nagashima, T.**, Hamada, M., Miyazaki, T., Kobayashi, K., & Shima, M. (2015). Cooperative liberal arts education and flipped classroom implementation with MOOC. *Journal of Digital Practices* 6(2), 89-96. (in Japanese)
- J1. **Nagashima, T.** (2014). What makes open education thrive? Examination of factors contributing to the success of open education initiatives. *International Journal for Innovation and Quality in Learning* 2(3), 10-21. [\[pdf\]](#)

Peer-Reviewed Conference Publications

- C32. *Vincoli, M., *Scholz, N., & **Nagashima, T.** (under review). "I think I would rather decide for myself what to do": Students' perception of agency in an AI-infused classroom.
- C31. Sabnis, N. & **Nagashima, T.** (under review). Empowering learners: Chatbot-mediated learning-by-teaching.

- C30. Karumbaiah, S., Borchers, C., Shou, T., Falhs, A., Liu, C., **Nagashima, T.**, Rummel, N., & Aleven, V. (2023). A spatiotemporal analysis of teacher practices in supporting student learning and engagement in an AI-enabled classroom. In *Proceedings of the International Conference on Artificial Intelligence in Education (AIED2023), Tokyo, Japan*.
- C29. **Nagashima, T.**, *Zheng, B., *Tseng, S., *Ling, E., & Aleven, V. (2023). Promoting students' self-regulated choices in learning with visual representations in intelligent tutoring software. In *Proceedings of the Annual Meeting for the International Society of the Learning Sciences (ISLS2023), Montreal, Canada*. [[pdf](#)]
- C28. **Nagashima, T.**, *Yadav, G., & Aleven, V. (2023). Remote classroom research toward equity during COVID-19. In K. Stamatis & J. Polman (Co-Chairs), *Designing to disrupt and encountering disruption: Engaging with the unexpected in educational research* [Symposium]. In *Proceedings of the Annual Meeting for the International Society of the Learning Sciences (ISLS2023), Montreal, Canada*. [[pdf](#)]
- C27. Shigeta, K., Takeda, T., Kaneko, D., Yagi, H., & **Nagashima, T.** (2022). Development of a Moodle plugin to track OER improvements. In *Proceedings of the Annual Conference for Japan Society for Educational Technology*, Kanagawa (in Japanese).
- C26. Aleven, V., Blankestijn, J., Lawrence, L., **Nagashima, T.**, & Taatgen, N. (2022). A dashboard to support teachers during students' self-paced AI-supported problem-solving practice. In *Proceedings of the 17th European Conference on Technology Enhanced Learning (EC-TEL2022)* [acceptance rate: 27.5%]. [[pdf](#)]
- C25. *Hou, X., **Nagashima, T.**, & Aleven, V. (2022). Design a dashboard for secondary-school learners to support mastery learning in a gamified learning environment. In *Proceedings of the 17th European Conference on Technology Enhanced Learning (EC-TEL2022)*. [[pdf](#)]
- C24. **Nagashima, T.**, *Britti, J., *Wang, X., *Zheng, B., Turri, V., *Tseng, S., & Aleven, V. (2022). Designing playful intelligent tutoring software to support engaging and effective algebra learning. In *Proceedings of the 17th European Conference on Technology Enhanced Learning (EC-TEL2022)* [acceptance rate: 27.5%]. [[pdf](#)]
- C23. **Nagashima, T.**, *Ling, E., *Zheng, B., Bartel, A. N., Silla, E. M., Vest, N. A., Alibali, M. W., & Aleven, V. (2022). How does sustaining and interleaving visual scaffolding help learners? A classroom study with an Intelligent Tutoring System. In *Proceedings of the 44th Annual Meeting of the Cognitive Science Society*. Cognitive Science Society (pp. 1751-1758). [[pdf](#)]
- C22. Vest, N. A., Silla, E. M., Bartel, A. N., **Nagashima, T.**, Aleven, V., & Alibali, M. W. (2022). Self-explanation of worked examples integrated in an Intelligent Tutoring System enhances problem solving and efficiency in algebra. In *Proceedings of the 44th Annual Meeting of the Cognitive Science Society*. Cognitive Science Society (pp. 3466-3472). [[pdf](#)]
- C21. **Nagashima, T.**, *Tseng, S., *Ling, E., Bartel, A. N., Vest, N. A., Silla, E. M., Alibali, M. W., & Aleven, V. (2022). Students' self-regulated use of diagrams in a choice-based Intelligent Tutoring System. In *Proceedings of the Annual Meeting for the International Society of the Learning Sciences (ISLS2022), Hiroshima, Japan*.
- C20. **Nagashima, T.** (2021). Towards fostering strategic choices in using diagrams in early algebra. [Doctoral Consortium]. In *Proceedings of the 12th International Conference on the Theory and Application of Diagrams (Diagrams 2021)*. [[pdf](#)]
- C19. **Nagashima, T.**, *Yadav, G., & Aleven, V. (2021). A framework to guide technology-based educational studies in the evolving classroom environment. In T. De Laet T, R. Klemke, C. Alario-Hoyos, I. Hilliger I, & A. Ortega-Arranz. (Eds.), *Proceedings of the 16th European Conference on Technology Enhanced Learning (EC-TEL2021)* (pp. 207-220). [acceptance rate: 21%]. [[pdf](#)]
- C18. **Nagashima, T.**, Bartel, A. N., *Tseng, S., Vest, N.A., Silla, E. M., Alibali, M. W., & Aleven, V. (2021). Scaffolded self-explanation with visual representations promotes efficient learning in early algebra. In T. Fitch, C. Lamm, H. Leder, & K. Teßmar-Raible (Eds.), *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society* (pp. 1858-1864). Cognitive Science Society. [[pdf](#)]
- C17. **Nagashima, T.**, Bartel, A. N., *Yadav, G., *Tseng, S., Vest, N. A., Silla, E. M., Alibali, M. W., & Aleven, V. (2021). Using anticipatory diagrammatic self-explanation to support learning and performance in early algebra. In E. de Vries, J. Ahn, & Y. Hod (Eds.), *15th International Conference of the Learning Sciences – ICLS 2021* (pp. 474–481). International Society of the Learning Sciences [acceptance rate: 33%]. **Best Design Paper Nominee**. [[pdf](#)]

- C16. **Nagashima, T.**, *Yadav, G., & Alevén, V. (2021). Rethinking technology-based educational studies in the evolving classroom environment: An interview study with US teachers. In E. de Vries, J. Ahn, & Y. Hod (Eds.), *15th International Conference of the Learning Sciences – ICLS 2021* (pp. 933–934). International Society of the Learning Sciences. [\[pdf\]](#)
- C15. Bartel, A. N., Silla, E. M., Vest, N.A., **Nagashima, T.**, Alevén, V., & Alibali, M. W. (2021). Reasoning about equations with tape diagrams: insights from math teachers and college students. In E. de Vries, J. Ahn, & Y. Hod (Eds.), *15th International Conference of the Learning Sciences – ICLS 2021* (pp. 685–688). International Society of the Learning Sciences [acceptance rate: 30%]. [\[pdf\]](#)
- C14. **Nagashima, T.**, Bartel, A. N., Silla, E. M., Vest, N. A., Alibali, M. W., & Alevén, V. (2020). Enhancing conceptual knowledge in early algebra through scaffolding diagrammatic self-explanation. In M. Gresalfi & I. S. Horn (Eds.), *14th International Conference of the Learning Sciences* (pp. 35-43). Nashville, TN: International Society of the Learning Sciences. [acceptance rate: 38%]. [\[pdf\]](#)
- C13. **Nagashima, T.**, *Yang, K., Bartel, A. N., Silla, E. M., Vest, N. A., Alibali, M. W., & Alevén, V. (2020). Pedagogical Affordance Analysis: Leveraging teachers’ pedagogical knowledge for eliciting pedagogical affordances and constraints of instructional tools. In M. Gresalfi & I. S. Horn (Eds.), *14th International Conference of the Learning Sciences* (pp. 1561-1564). Nashville, TN: International Society of the Learning Sciences. [\[pdf\]](#)
- C12. Bartel, A. N., Silla, E. M., Vest, N. A., **Nagashima, T.**, Alevén, V., & Alibali, M. W. (2020). Reasoning about equations with tape diagrams: Do visual features matter? [Conference Abstract] In *Proceedings of the 42nd Annual Meeting of the Cognitive Science Society*, Toronto, Canada.
- C11. **Nagashima, T.** (2019). Towards enhancing conceptual knowledge in algebra through diagrammatic self-explanation. [Doctoral Consortium]. In *Companion Proceedings of the 9th International Learning Analytics and Knowledge Conference (LAK19)*. Tempe, AZ. [\[pdf\]](#)
- C10. Shigeta, K., Takeda, T., Mori, H., Yagi, H., **Nagashima, T.**, Kaneko, D., & Hayashi, Y. (2019). A practice of group-based learning support in online learning based on learner motivation and goal setting. *Workshop paper, Information Processing Society of Japan* (in Japanese).
- C9. **Nagashima, T.** (2018). Contextualized instruction in data science and its effect on transfer of learning. [Doctoral Consortium]. In *Proceedings of the 13th European Conference on Technology Enhanced Learning (EC-TEL)*. Leeds, UK
- C8. Takeda, T., Hayashi, Y., Shigeta, K., Mori, H., Kaneko, D., Yagi, H., & **Nagashima, T.** (2018). Visualizing relationships among content topics and learning activities of online courses. In *Proceedings of EdMedia: World Conference on Educational Media and Technology*. Amsterdam, Netherlands: Association for the Advancement of Computing in Education (AACE).
- C7. Shigeta, K., Yagi, H., Takeda, T., Mori, H., Hayashi, Y., Kaneko, D., & **Nagashima, T.** (2017). A study on improving learning materials utilizing comments on MOOC discussion boards. In *Proceedings of the Annual Conference for Japan Society for Educational Technology*, Shimane. (in Japanese)
- C6. Hayashi, Y., Takeda, T., **Nagashima, T.**, Yagi, H., Mori, H., Kaneko, D., & Shigeta, K. (2016). Development of the dashboard system for teachers to perform effective indication of the learning data analysis. In *Proceedings of the 5th International Conference on Knowledge Creation and Intelligent Computing*. Manado, Indonesia.
- C5. **Nagashima, T.**, Yagi, H., & Shigeta, K. (2015). The core value of delivering MOOC as OER. In *Proceedings of the Annual Conference for Japan Association for Educational Media*, Tokyo. (in Japanese)
- C4. Yagi, H. **Nagashima, T.**, & Shigeta, K. (2015). Improvement model of lectures and teaching materials developed by OER and MOOC. In *Proceedings of the Annual Conference for Japan Association for Educational Media*, Tokyo. (in Japanese)
- C3. Yagi, H., **Nagashima, T.** Hamada, M., Shima, M., Kobayashi, K., & Shigeta K. (2015). Flipped classroom using interactive distance learning system: An experimental class in liberal arts education among national universities in Hokkaido. In *Proceedings of the Annual Conference for Japan Society for Educational Technology*, Tokyo. (in Japanese)
- C2. Yagi, H., **Nagashima, T.**, Hamada, M., Shima, M., Kobayashi, K., & Shigeta K. (2015). Development of educational videos for liberal arts education among national universities in Hokkaido: How instructional designers and video content specialists can develop a collaborative workflow in a small team. In *Proceedings of the Annual Conference for Japan Society for Information and Systems in Education*, Tokyo. (in Japanese)

- C1. **Nagashima, T.** (2013). Open educational resources in higher education: A global perspective. In *Proceedings of the International Conference for Media in Education*, Aichi.

Other Publications

- O9. Farrow, R., Weller, M., Pitt, R., Iniesto, F., Algers, A., Almousa, S., Baas, M., Bentley, P., Bozkurt, A., Butler, W., Cardoso, P., Chtena, N., Cox, G., Czerwonogóra, A., Dabrowski, M.T., Derby, R., DeWaard, H., Elias, T., Essmiller, K., Funk, J., Hayman, J., Helton, E., Huth, K., Hutton, S. C., Iyinolakan, O., Johnson, K. R., Jordan, K., Kuhn, C., Lambert, S., Mittelmeier, J., **Nagashima, T.**, Nerantzi, C., O'Reilly, J., Paskevicius, M., Peramunugamage, A., Pete, J., Power, V., Pulker, H., Rabin, E., Rets, I., Roberts, V., Rodés, V., Sousa, L., Spica, E., Vizgirda, V., Vladimirschi, V., & Witthaus, G. (2023). The GO-GN Open Research Handbook. *Global OER Graduate Network / Open Education Research Hub*. CC-BY 4.0. [\[pdf\]](#).
- O8. Shigeta, K., Takeda, T., Kaneko, D., Yagi, H., & **Nagashima, T.** (2021). Development of a Moodle plugin for structuring and versioning OER. *Seminar on Collaboration and Learning Environments*. Information Processing Society of Japan.
- O7. Farrow, R., Iniesto, F., Weller, M., Pitt, R., Algers, A., Bass, M., Bozkurt, A., Cox, G., Czerwonogóra, A., Elias, T., Essmiller, K., Funk, J., Lambert, S., Mittelmeier, J., **Nagashima, T.**, Rabin, E., Rets, I., Spica, E., Vladimirschi, V. & Witthaus, G (2021). The GO-GN guide to conceptual frameworks. *Open Education Research Hub. The Open University, UK*. CC-BY 4.0. [\[pdf\]](#)
- O6. **Nagashima, T.** (2018). Recent trends in open textbook adoption and research. *SIG Report. Game Learning and Open Education Special Interest Group*. Japan Society for Educational Technology. (in Japanese)
- O5. Wiens, K., Tarkowski, A., Watanabe, T., **Nagashima, T.**, Allen, N., Appleyard, B., Botero, C., Juliana, M., Mora, L., Smith, J., Salem, N., & Browne, D. (2016). Global Open Policy Report 2016. *Open Policy Network*. [\[report\]](#)
- O4. Shigeta, K. & **Nagashima, T.** (2016). Envisioning the future of open education: a perspective from the non-English-speaking world. *FutuOER*.
- O3. **Nagashima, T.** (2016). OER research initiatives around the world. *SIG Report. Game Learning and Open Education Special Interest Group*. Japan Society for Educational Technology. (in Japanese)
- O2. **Nagashima, T.** (2015). How should we approach openness in MOOC? *SIG Report. Game Learning and Open Education Special Interest Group*. Japan Society for Educational Technology. (in Japanese)
- O1. Watanabe, T., Shigeta, K., **Nagashima, T.**, & Tanaka, K. (2014). Implication of EU's open education policy on educational system in Japan: Global competitiveness, employment, and digital divide. *Report by Innovation Nippon*. (in Japanese)

CONFERENCE PRESENTATIONS

- T43. **Nagashima, T.**, *Zheng, B., *Tseng, S., *Ling, E., & Aleven, V. (2023). Promoting students' self-regulated choices in learning with visual representations in intelligent tutoring software. In *Proceedings of the Annual Meeting for the International Society of the Learning Sciences (ISLS2023), Montreal, Canada*.
- T42. **Nagashima, T.**, *Yadav, G., & Aleven, V. (2023). Remote classroom research toward equity during COVID-19. In K. Stamatis & J. Polman (Co-Chairs), *Designing to disrupt and encountering disruption: Engaging with the unexpected in educational research* [Symposium]. In *Proceedings of the Annual Meeting for the International Society of the Learning Sciences (ISLS2023), Montreal, Canada*.
- T41. Aleven, V., Blankestijn, J., Lawrence, L., **Nagashima, T.**, & Taatgen, N. (2022). A dashboard to support teachers during students' self-paced AI-supported problem-solving practice. In *Proceedings of the 17th European Conference on Technology Enhanced Learning (EC-TEL2022)*.
- T40. *Hou, X., **Nagashima, T.**, & Aleven, V. (2022). Design a dashboard for secondary-school learners to support mastery learning in a gamified learning environment. In *Proceedings of the 17th European Conference on Technology Enhanced Learning (EC-TEL2022)*

- T39. **Nagashima, T.**, *Britti, J., *Wang, X., *Zheng, B., Turri, V., *Tseng, S., & Alevén, V. (2022). Designing playful intelligent tutoring software to support engaging and effective algebra learning. In *Proceedings of the 17th European Conference on Technology Enhanced Learning (EC-TEL2022)*.
- T38. **Nagashima, T.**, *Ling, E., *Zheng, B., Bartel, A. N., Silla, E. M., Vest, N. A., Alibali, M. W., & Alevén, V. (2022). How does sustaining and interleaving visual scaffolding help learners? A classroom study with an Intelligent Tutoring System. In *Proceedings of the 44th Annual Meeting of the Cognitive Science Society*. Cognitive Science Society.
- T37. Vest, N. A., Silla, E. M., Bartel, A. N., **Nagashima, T.**, Alevén, V., & Alibali, M. W. (2022). Self-explanation of worked examples integrated in an Intelligent Tutoring System enhances problem solving and efficiency in algebra. In *Proceedings of the 44th Annual Meeting of the Cognitive Science Society*. Cognitive Science Society.
- T36. **Nagashima, T.**, *Tseng, S., *Ling, E., Bartel, A. N., Vest, N. A., Silla, E. M., Alibali, M. W., & Alevén, V. (2022). Students' self-regulated use of diagrams in a choice-based Intelligent Tutoring System. In *Proceedings of the Annual Meeting for the International Society of the Learning Sciences (ISLS2022), Hiroshima, Japan*.
- T35. Takeda, T., Shigeta, K., Kaneko, D., Yagi, H., & **Nagashima, T.** (2022). Design and implementation of a system to improve the findability of OER. *Study Workshop by Japan Society for Information and Systems in Education*. (in Japanese)
- T34. Bartel, A. N., Vest, N. A., Silla, E., M., **Nagashima, T.**, Alevén, V., & Alibali, M. W. (2022). Do tape diagrams in explanations of worked examples foster conceptual understanding? Evidence from early algebra. Poster accepted at the Annual Meeting of the Mathematical Cognition and Learning Society.
- T33. Silla, E. M., Vest, N. A., Bartel, A. N., **Nagashima, T.**, Alevén, V., & Alibali, M. W. (2022). Middle-school students' preferences for visual features of tape diagrams and their relation to symbolizing equations. Poster accepted at the Annual Meeting of the Mathematical Cognition and Learning Society.
- T32. Silla, E. M., Vest, N. A., **Nagashima, T.**, Bartel, A. N., Anthony, L. E., Alevén, V., & Alibali, M. W. (2022). Efficacy of tape diagrams: Evidence from an Intelligent Tutoring System. Lightning talk presented at the Annual Meeting of the Mathematical Cognition and Learning Society.
- T31. **Nagashima, T.**, *Yadav, G., & Alevén, V. (2021). A framework for conducting remote classroom research. Presented at the CIRCLS'21 Convening. Center for Integrative Research in Computing and Learning Sciences.
- T30. Silla, E. M., Tommasi, T., Vest, N. A., Bartel, A. N., Buehler, Z., Manhart, H., Petersdorff, M., **Nagashima, T.**, Alevén, V. & Alibali, M. W. (2021). Fostering conceptual understanding of equation solving via an Intelligent Tutoring System. *Wisconsin Center for Education Research*.
- T29. **Nagashima, T.**, *Yadav, G., & Alevén, V. (2021). A framework to guide technology-based educational studies in the evolving classroom environment. In T. De Laet T, R. Klemke, C. Alario-Hoyos, I. Hilliger I, & A. Ortega-Arranz. (Eds.), *Proceedings of the 16th European Conference on Technology Enhanced Learning (EC-TEL2021)* (pp. 207-220).
- T28. **Nagashima, T.**, Bartel, A. N., *Tseng, S., Vest, N.A., Silla, E. M., Alibali, M. W., & Alevén, V. (2021). Scaffolded self-explanation with visual representations promotes efficient learning in early algebra. In T. Fitch, C. Lamm, H. Leder, & K. Teßmar-Raible (Eds.), *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society* (pp. 1858-1864). Cognitive Science Society.
- T27. **Nagashima, T.**, Bartel, A. N., *Yadav, G., *Tseng, S., Vest, N. A., Silla, E. M., Alibali, M. W., & Alevén, V. (2021). Using anticipatory diagrammatic self-explanation to support learning and performance in early algebra. In E. de Vries, J. Ahn, & Y. Hod (Eds.), *15th International Conference of the Learning Sciences – ICLS 2021* (pp. 474–481). International Society of the Learning Sciences.
- T26. **Nagashima, T.**, *Yadav, G., & Alevén, V. (2021). Rethinking technology-based educational studies in the evolving classroom environment: An interview study with US teachers. In E. de Vries, J. Ahn, & Y. Hod (Eds.), *15th International Conference of the Learning Sciences – ICLS 2021* (pp. 933–934). International Society of the Learning Sciences.
- T25. Vest, N. A., Silla, E. M., Bartel, A. N., **Nagashima, T.**, Alevén, V. & Alibali, M. W. (2021). Learning from worked examples: Conceptually rich explanations predict conceptual gains. The Society for Research in Child Development Biennial Meeting.

- T24. Bartel, A. N., Silla, E. M., Vest, N. A., **Nagashima, T.**, Tang, Y., Aleven, V. & Alibali, M. W. (2021). Do tape diagrams promote a focus on conceptual principles? Evidence from equation solving with an Intelligent Tutoring System. In Wong, T. (Chair), *Principle knowledge in mathematics: Its development, cognitive predictors, and potential interventions*, Symposium at the Annual Meeting of the Mathematical Cognition and Learning Society, Dublin, Ireland. [[Recording](#)]
- T23. **Nagashima, T.**, Bartel, A., Silla, E., Vest, N., Alibali, M., & Aleven, V. (2020). Collaborative open educational practices: sharing evidence-based Open Educational Resources to facilitate meaningful adaptation. Open Education Conference. [[link to the webpage](#)]
- T22. Shigeta, K., Takeda, T., Mori, H., Yagi, H., **Nagashima, T.**, Kaneko, D., & Hayashi, Y. (2019). A practice of group-based learning support in online learning based on learner motivation and goal setting. *Workshop paper, Information Processing Society of Japan* (in Japanese).
- T21. **Nagashima, T.**, Xiong, Y., Bodily, R., & Stamper, J. (2018). Student engagement and learning in an OER-based course: a longitudinal study. Open Education Conference, NY.
- T20. **Nagashima, T.** & Stamper, J. (2018). Contextualized instruction with OER: Examining the Remix Hypothesis. Open Education Conference, NY.
- T19. Cannanure, V., **Nagashima, T.**, Gordon, G., & Brown, T. (2018). QnA: a low-cost system for developing interactive OER in computer science. Open Education Conference, NY
- T18. Mori, H., **Nagashima, T.**, Takeda, T., Hayashi, Y., Kaneko, D., Kojima, K., Yagi, H., & Shigeta, K. (2018). Persistence decision model for learning in MOOC. Study Workshop by Japan Society of Educational Technology, Tokyo. (in Japanese)
- T17. Takeda, T., Hayashi, Y., Shigeta, K., Mori, H., Kaneko, D., Yagi, H., & **Nagashima, T.** (2018). Visualizing relationships among content topics and learning activities of online courses. In *Proceedings of EdMedia: World Conference on Educational Media and Technology*. Amsterdam, Netherlands: Association for the Advancement of Computing in Education (AACE).
- T16. Shigeta, K., Yagi, H., Takeda, T., Mori, H., Hayashi, Y., Kaneko, D., & **Nagashima, T.** (2017). A study on improving learning materials utilizing comments on MOOC discussion boards. In *Proceedings of the Annual Conference for Japan Society for Educational Technology, Shimane*. (in Japanese)
- T15. Hayashi, Y., Takeda, T., **Nagashima, T.**, Yagi, H., Mori, H., Kaneko, D., & Shigeta, K. (2016). Development of the dashboard system for teachers to perform effective indication of the learning data analysis. In *Proceedings of the 5th International Conference on Knowledge Creation and Intelligent Computing*. Manado, Indonesia.
- T14. **Nagashima, T.**, Yagi, H., & Shigeta, K. (2015). The core value of delivering MOOC as OER. In *Proceedings of the Annual Conference for Japan Association for Educational Media*, Tokyo. (in Japanese)
- T13. Yagi, H. **Nagashima, T.**, & Shigeta, K. (2015). Improvement model of lectures and teaching materials developed by OER and MOOC. In *Proceedings of the Annual Conference for Japan Association for Educational Media*, Tokyo. (in Japanese)
- T12. Yagi, H., **Nagashima, T.** Hamada, M., Shima, M., Kobayashi, K., & Shigeta K. (2015). Flipped classroom using interactive distance learning system: An experimental class in liberal arts education among national universities in Hokkaido. In *Proceedings of the Annual Conference for Japan Society for Educational Technology*, Tokyo. (in Japanese)
- T11. Yagi, H., **Nagashima, T.**, Hamada, M., Shima, M., Kobayashi, K., & Shigeta K. (2015). Development of educational videos for liberal arts education among national universities in Hokkaido: How instructional designers and video content specialists can develop a collaborative workflow in a small team. In *Proceedings of the Annual Conference for Japan Society for Information and Systems in Education*, Tokyo. (in Japanese)
- T10. Hrach, S., Gallant, J., & **Nagashima, T.** (2017). Motivating factors among faculty for adopting OER. Open Education Conference, Anaheim.
- T9. Kaneko, D., Kojima, K., Shigeta, K., Takeda, T., Mori, H., Hayashi, Y., Yagi, H., & **Nagashima, T.** (2017). Evaluation criteria for pedagogical practices in MOOC. Study Workshop by Japan Society for Information and Systems in Education. (in Japanese)

- T8. Kaneko, D., Kojima, K., Shigeta, K., Takeda, T., Mori, H., Hayashi, Y., Yagi, H., & **Nagashima, T.** (2017). Applicable evaluation criteria for MOOC. Study Workshop by Japanese Society for Information and Systems in Education. (in Japanese)
- T7. Shigeta, K., Fujita, Y., Yagi, H., **Nagashima, T.**, Hamada, M., Sata, M., Matsumoto, T., Tanaka, H., Kobayashi, K., & Shima, M. (2016). Open education strategy at universities in Hokkaido region utilizing OER. Open Education Global 2016, Kraków.
- T6. Takeda, T., Hayashi, Y., Shigeta, K., Mori, H., Kaneko, D., Yagi, H., & **Nagashima, T.** (2016). Dashboard development for improving instruction on MOOC. Study Workshop by Japan Society of Educational Technology, Chiba. (in Japanese)
- T5. Shigeta, K., Matsukawa, H., Matsuda, T., Watanabe, Y., Kato, H., Yagi, H., & **Nagashima, T.** (2016). Developing classifying methods of course types through the analysis of syllabi. Study Workshop by Japan Society for Educational Technology, Kagawa. (in Japanese)
- T4. **Nagashima, T.**, Shigeta, K., & Bier, N. (2015). Tackling a lack of local OER: How international OER adoption enhanced the quality of learning on campus. Open Education Conference, Vancouver.
- T3. **Nagashima, T.** (2015). What do we really mean by “open”? SIG Session, Annual Conference for Japan Society for Educational Technology, Tokyo. (in Japanese)
- T2. **Nagashima, T.** (2015). Running open MOOC: Experience from Hokkaido University. Academic Exchange for Information Environment and Strategy Seminar, Sapporo. (in Japanese)
- T1. **Nagashima, T.** (2013). Open educational resources in higher education: A global perspective. In *Proceedings of the International Conference for Media in Education*, Aichi.

INVITED TALKS

- IT17. **Nagashima, T.** (2023). Promoting and understanding students’ strategic learning choices with visual representations in early algebra with technology. Department of Education Sciences, Saarland University.
- IT16. **Nagashima, T.** (2023). Promoting students’ strategic learning choices in AI-based math tutoring software. Center for Advanced Internet Studies (CAIS), Bochum.
- IT15. Chan, J. Y.-C., **Nagashima, T.**, & Chua, S. (2023). COIL: What is it? How to get started? Ideas for feedback. Department of Early Childhood Education, The Education University of Hong Kong.
- IT14. **Nagashima, T.** (2023). How might we support engaging and effective math learning using technology? Future+Learning Working Group, Harvard University Berkman Klein Center for Internet and Society, Cambridge, MA.
- IT13. **Nagashima, T.** (2023). Choose wisely: Promoting strategic learner choices in intelligent tutoring software for early algebra. Future Learning Initiative, ETH Zürich.
- IT12. **Nagashima, T.** (2022). Fostering learners of the future through human-centered design of advanced technologies. Hokkaido University, Sapporo. (in Japanese).
- IT11. **Nagashima, T.** (2021). Supporting learners of the future through human-centered learning analytics research. TU Delft, Delft.
- IT10. **Nagashima, T.** (2021). Pedagogical Affordance Analysis: Leveraging learning sciences approaches in designing technology. Tilburg University, Tilburg.
- IT9. **Nagashima, T.** (2021). Learning analytics and gamification. Presented at the Symposium on Digital Transformation in Higher Education. National Institute of Informatics. Tokyo, Japan. (in Japanese).
- IT8. **Nagashima, T.** (2021). Open Educational Resources and the COVID-19 pandemic: Opportunities and challenges. Hokkaido University, Sapporo (in Japanese).
- IT7. **Nagashima, T.** (2021). Co-design in open education practices. International Christian University, Tokyo.

- IT6. **Nagashima, T.** (2020). Pedagogical Affordance Analysis. AECT Annual Convention (as part of AECT awardees' presentations).
- IT5. **Nagashima, T.** (2020). Connecting education research with classroom practices through co-design. Keio University, Tokyo (in Japanese).
- IT4. **Nagashima, T.** (2020). Designing instruction by leveraging pedagogical affordances and constraints. International Christian University, Tokyo.
- IT3. **Nagashima, T.** (2019). Recent trends in learning analytics research. Hokkaido University, Sapporo. (in Japanese).
- IT2. **Nagashima, T.** (2016). Effective use of ICT in higher education: lessons learned at Hokkaido University. Academic Link Seminar. Chiba University, Chiba. (in Japanese)
- IT1. Allen, N., Beckett, M., Lesko, I., Wiens, K., Jacob, M., & **Nagashima, T.** (2015). Open Education: Policy and Practice [Invited panel]. OpenCon 2015, Brussels.

RESEARCH & PROFESSIONAL EXPERIENCES

2018 – 2022	Human-Computer Interaction Institute , Carnegie Mellon University, Pittsburgh, PA <i>Graduate Student Researcher</i> with Vincent Alevan and Martha Alibali
2021	Institute for Policy Research , Northwestern University, Evanston, IL <i>Participant, Summer Research Training Institute on Improving Evaluations of R&D in STEM Education</i>
2017 - 2019	Program in Interdisciplinary Education Research , Carnegie Mellon University, Pittsburgh, PA <i>Associate</i>
2017 - 2018	Human-Computer Interaction Institute , Carnegie Mellon University, Pittsburgh, PA <i>Graduate Student Researcher</i> with John Stamper
2018	LearnLab Summer School , Carnegie Mellon University, Pittsburgh, PA <i>Participant, Educational Data Mining track</i>
2016 - 2018	Open Education Group , Brigham Young University, Provo, UT <i>OER Research Fellow</i>
2015 - 2018	Center for Open Education , Hokkaido University, Sapporo, Japan <i>Research Collaborator</i>
2017	Open Learning Initiative , Stanford University, Stanford, CA <i>Learning Engineer Intern</i> with Candace Thille
2015 - 2016	Fujitsu/Hokkaido University , Sapporo, Japan <i>Research Fellow</i>
2014 - 2016	Center for Open Education , Hokkaido University, Sapporo, Japan <i>Instructional Designer / Project Manager</i>
2014 - 2015	Innovation Nippon , Tokyo, Japan <i>Research Assistant</i> with Tomoaki Watanabe
2013 - 2014	International Christian University , Tokyo, Japan <i>Undergraduate Research Assistant</i> with Masako Miyahara & Atsuko Watanabe
2013 - 2014	International Christian University , Tokyo, Japan <i>Undergraduate Research Assistant</i> with Insung Jung

TEACHING & MENTORING

Teaching

- 2023-2024 **Saarland Informatics Campus, Saarbrücken, GERMANY**
Instructor
 Course Title: Intelligent Systems for Supporting Human Learning (Seminar)
- 2021 **Carnegie Mellon University, Pittsburgh, PA**
Teaching Assistant with Raelin Musuraca and Motahhare Eslami
 Course Title: User-Centered Research and Evaluation (99 graduate and undergraduate students)
- Gave lectures in 80-min lab sessions every week (15 weeks, 24 students)
 - Graded weekly assignments and course projects on user research
 - Helped design course materials including lecture slides, quizzes, and assignments
 - Held weekly office hours to support student learning
 - Mid-term teaching evaluation: 4.83/5.00
- 2018 **Carnegie Mellon University, Pittsburgh, PA**
Teaching Assistant with John Stamper and Adam Perer
 Course Title: Interactive Data Science (70 graduate and undergraduate students)
- Taught four 70-min lectures on experimental design and data analysis
 - Graded students' weekly assignments and course projects on data science
 - Designed course materials including lecture slides and assignments
 - Helped student groups with their course projects
- 2014, 2018 **Open Education Lab, Sapporo, Japan**
Teaching Assistant with Katsusuke Shigeta, Toshiyuki Takeda, and Hideki Mori
 Course Title: Open Education and the Future of Learning (offered on Japanese MOOC; approx. 8,000 participants)
- Designed course assignments and quizzes
 - Managed online discussions daily
 - Provided instructional support for learners
 - Offered "in-person" sessions with about 30 learners in the course to promote deeper understanding of the topics covered in the course
- 2015 **Hokkaido University, Sapporo, Japan**
Teaching Assistant with lead instructors Tamotsu Kozaki and Naoko Watanabe
 Course Title: Effects of Radiation: An Introduction to Radiation and Radioactivity (offered on edX; approx. 5,000 participants)
- Co-developed lecture materials and assignments with instructors
 - Facilitated online discussions
 - Helped with technical and content-related issues
 - Provided online support for learners
- 2014 - 2016 **Hokkaido University, Sapporo, Japan**
Instructional Designer & Project Manager
- Co-designed with university faculty over 200 educational materials (modules) in various domains, which were shared as Open Educational Resources (OER)
- 2014 - 2016 **Hokkaido University, Sapporo, Japan**
Teaching Assistant with Katsusuke Shigeta
 Course Title: Introduction to Information Science (30 undergraduate students)
- Co-developed course materials (lectures and assignments)
 - Taught two 60-min lectures on the topics of cybersecurity and copyright
 - Facilitated classroom discussions
 - Graded assignments

Invited Guest Lectures

- 2022 **Understanding and Supporting Human Learning with Advanced Technology**, in *Perspectives of Computer Science* (lecture), Saarland University

2022 **Understanding and Supporting Human Learning with Advanced Technology**, in *EduTech 1* (lecture), Saarland University

Mentoring

2023 - present **Man Su** (Postdoctoral researcher at Saarland University)
 2023 - present **Katharina Bonaventura** (Master's student in Computer Science at Saarland)
 2023 - present **Justin Gole** (Master's student in Educational Technology at Saarland)
 2023 - present **Helena Kilger** (Master's student in Educational Technology at Saarland)
 2023 - present **Michelle Mielke** (Master's student in Educational Technology at Saarland)
 2023 - present **Shintaro Sato** (Master's student in Educational Technology at Saarland)
 2023 - present **Niklas Scholz** (Undergraduate student in Computer Science at Saarland)
 2023 - present **Narek Shamamyan** (Master's student in Educational Technology at Saarland)
 2023 - present **Mareike Silber** (Master's student in Educational Technology at Saarland)
 2023 **Martina Vincoli** (Master's student in HCI at Trento University)
 2022 - 2023 **Cindy Liu** (Undergraduate student at CMU, currently Research Associate at CMU HCII)
 2021 - 2022 **Bin Zheng** (Undergraduate student at CMU)
 2022 **Hwayoung Jeong** (Undergraduate student at CMU)
 2022 **Yuling Sun** (Undergraduate student at Wellesley College)
 2022 **Dreami Chambers** (Undergraduate student at CMU)
 2021-2022 **Elizabeth Ling** (Undergraduate student at Harvard)
 2020-2022 **Xiaoying Meng** (Undergraduate student at CMU, currently master's student at CMU)
 2020-2022 **Stephanie Tseng** (Undergraduate student at CMU, currently at JPMC)
 2019-2022 **John Britti** (Undergraduate student from Georgia Tech, currently master's student at GT)
 2021 **Marcus Artigue** (Undergraduate student at Hope College)
 2021 **Michelle Ma** (Undergraduate student at UCLA, currently at CNN)
 2019-2022 **Xiran Wang** (Undergraduate student at CMU, currently at Apple)
 2020-2021 **Jeff Chen** (Undergraduate student at CMU)
 2020-2021 **Sihan Wu** (Undergraduate student at CMU)
 2020-2021 **Xinying Hou** (Graduate student at CMU, currently PhD student at the UMich)
 2020 **Ruitao Li** (Undergraduate student at CMU)
 2020 **Jordan Love** (Undergraduate student at University of Kansas, currently at Samsung)
 2020 **Gautam Yadav** (Graduate student at CMU, currently Learning Engineer at CMU HCII)
 2020 **Junhui Yao** (Graduate student at CMU, currently Software Engineer at Huawei)
 2020 **Alan Zhao** (Undergraduate student at Pomona College)
 2019 **Evan Fang** (Undergraduate student at CMU)
 2019 **Emilie Guermeur** (Undergraduate student at CMU)
 2019 **Trula Rael** (Undergraduate student at Harvard, currently at BCG)
 2019 **Kexin Yang** (Graduate student at CMU, currently PhD student at CMU HCII)

Other Mentoring

2020, 2021 **LearnLab Summer School**, Carnegie Mellon University, Pittsburgh, PA
Mentor, Intelligent Tutoring System track
 - Mentored two participant groups (five students in total) on their design and implementation of an intelligent tutoring system

PRACTITIONER RESOURCES

2020 **Tape Diagram Template for Equations**
Tape diagram representation template made in Google slides, provided under CC-BY-NC
<https://tinyurl.com/tapetemplate>

2020 **Tape Diagram Generation Tool**
Automatic tape diagram generation tool available on MathTutor
<https://preview.ctat.cs.cmu.edu/home>

SERVICE

Editorial Boards

2021 - present CIRCLS/ISLS Rapid Community Reports

Conference Chair Roles

2023 Workshop Co-Chair, European Conference on Technology Enhanced Learning (EC-TEL)

Conference Program Committee

2023 - present International Conference on Artificial Intelligence in Education (AIED)

2023 - present International Conference on Computer Supported Education (CSEDU)

Reviewer for Conferences and Journals

2023 - present International Conference on Artificial Intelligence in Education (AIED)

2022 - present ACM Transactions on Computer-Human Interaction (TOCHI)

2021 - present Journal of Interactive Media in Education (JIME)

2020 - present Annual Meeting of the International Society of the Learning Sciences (ISLS)

2018 - present ACM Conference on Human Factors in Computing Systems (CHI)

2018 - present European Conference on Technology Enhanced Learning (EC-TEL)

2016 - present International Review of Research in Open and Distributed Learning (IRRODL)

2021 - 2022 ACM Interaction Design and Children Conference (IDC)

2019 - 2020 Mathematical Cognition and Learning Society Conference (MCLS)

2017 - 2019 International Learning Analytics and Knowledge Conference (LAK)

2019 - 2021 Open Education Conference (OpenEd)

2017 - 2020 International Conference of the Learning Sciences (ICLS)

Other Service

2022 - present **Berkman Klein Center for Internet and Society, Harvard University**

Co-Organizer, Future+Learning Working Group

2021 - present **Creative Commons Copyright Platform**

Member, Artificial Intelligence, Copyright, & Open Sharing Working Group

2021 - present **Creative Commons Copyright Platform**

Member, Beyond Copyright: The Ethics of Open Sharing Working Group

2012 - present **Creative Commons Japan, Tokyo, Japan**

Member

2017 - 2022 **Global OER Graduate Network, The Open University, Milton Keynes, UK**

Ph.D. Student Member

2014 - 2022 **OER World Map, Köln, GERMANY**

Country Champion of Japan

2018 - 2021 **Japan Society for Educational Technology, Tokyo, Japan**

Organizing Committee, Game Learning and Open Education Special Interest Group

2016 - 2017 **The Rotary Club of Los Altos, Los Altos, CA**

Honorary Member

2013 **International Christian University, Tokyo, Japan**

Organizer, Senior Thesis Poster Session Program

MEMBERSHIP

Association for Computing Machinery (ACM)

Cognitive Science Society (CogSci)

International Society of the Learning Sciences (ISLS)