December 2023

Tomohiro Nagashima, Ph.D.

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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: *Promoting Students' Self-Regulated Choices in Learning with Visual Representations*
Committee: Geoff Kaufman, Amy Ogan, Martha W. Alibali (UW-Madison), & Timothy Nokes-Malach (Pitt)
**Robert M. Gagné Award for Graduate Student Research in Instructional Design by AECT*

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

2023 **Robert M. Gagné Award for Graduate Student Research in Instructional Design (€235)**, Association for Educational Communications and Technology (AECT) for my doctoral dissertation at CMU

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 - 2027 **Understanding and supporting learning with AI in classrooms through co-design with students**
PI
Japan Science and Technology Agency (Precursory Research for Embryonic Science and Technology program: "Sakigake")
JPY 48,000,000 (€304.817)
Funding rate: 6.7%

2024 - 2026 **Living "AI-ducation" dashboard**
Co-PI
Stiftung Innovation in der Hochschullehre ("Freiraum 2023")
with Sarah Malone (PI)
€206.088

2023 - 2025 **Data-driven pedagogical improvement for hybrid teaching**
Co-PI
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)

2020 - 2023 **Developing data-informed OER improvement system**
Co-PI
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)

2015 – 2019 **Leveraging learning analytics to improve teaching and learning with MOOC**
Co-PI
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)

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

Stringently Refereed Conference and Journal Publications (C: conference paper, J: journal article)

J6. Su, M., Chi, M. T., **Nagashima, T**., Cang, X., & Xin, Y. (under review). The PAIR-C Framework: Fostering deep understanding of science concepts.

C28. Su, M., Chi, M. T., **Nagashima, T**., Gole, J., Xin, Y., & Ha, J. (under review). Exploration of cognitive engagement patterns in online environments with multiple external representations.

C27. ***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.

C26. Sabnis, N. & **Nagashima, T.** (under review). Empowering learners: Chatbot-mediated learning-by-teaching.

J5. Chan, J. Y.-C., **Nagashima, T.,** & Closser, A. H. (2023). Participatory design for Cognitive Science: Examples from the Learning Sciences and Human-Computer Interaction. *Cognitive Science, 47*(10). [link]

J4. Sha, H., Sugiura, M., **Nagashima, T.,** & Shigeta, K. (2023). Relations between participation in collaborative learning and learning outcomes in online learning. *Information and Technology in Education and Learning, 3*(1), 1-5. [link] [pdf]

C25. **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]

C24. **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]

C23. 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.* [link] [pdf]

C22. **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.* [link] [pdf]

C21. **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%]. [link] [pdf]

C20. **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). [link] [pdf]

C19. 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%]. [link] [pdf]

C18. *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).* [link]

C17. 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). [link] [pdf]

C16. 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).

J3. **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. [link] [pdf]

C15**.** **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%]. [link]

C14. **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. [link] [pdf]

C13. **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]

C12. 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)*. [link] [pdf]

C11. Bartel, A. N., Silla, E. M., Vest, N.A., **Nagashima, T.**, Aleven, 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]

C10. **Nagashima, T.**, Bartel, A. N., Silla, E. M., Vest, N. A., Alibali, M. W., & Aleven, 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]

C9. **Nagashima, T.**, *Yang, K., Bartel, A. N., Silla, E. M., Vest, N. A., Alibali, M. W., & Aleven, 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]

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.

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)

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)

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]

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

Peer-Reviewed Conference Posters and Workshops (W: workshop paper, P: poster)

W4. **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]

P2. **Nagashima, T.**, *Yadav, G., & Aleven, 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]

P1. Bartel, A. N., Silla, E. M., Vest, N. A., **Nagashima, T.**, Aleven, 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.

W3. **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]

W2. 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).

W1. **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

Other Publications (practitioner guides, white papers, and policy reports)

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., Czerwonogora, 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., & 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).*

T38. **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.

T37. 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.

T36. **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.*

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**., Aleven, 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**., Aleven, 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., Aleven, 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., & Aleven, 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.**, Aleven, 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., & 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).

T28. **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.

T27. **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.

T26. **Nagashima, T.**, *Yadav, G., & Aleven, 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.**, Aleven, 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

IT19. **Nagashima, T**. (2023). Opportunities and challenges of digital education: A technological perspective. Keynote talk at the Digital Education Day, Tübingen Center for Digital Education.

IT18. **Nagashima, T**. (2023). Promoting students' self-regulated choices in learning with visual representations. AECT Annual Convention (as part of AECT awardees' presentations).

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

2023	**Institute for the Study of Knowledge Management in Education (ISKME)**, Half Moon Bay, CA *Independent Contractor*
2018 – 2022	**Human-Computer Interaction Institute,** Carnegie Mellon University, Pittsburgh, PA *Graduate Student Researcher* with Vincent Aleven and Martha Alibali
2021	**Institute for Policy Research**, Northwestern University, Evanston, IL *Participant, Summer Research Training Institute on Improving Evaluations of R&D in STEM Education*
2017 - 2019	**Program in Interdisciplinary Education Research,** Carnegie Mellon University, Pittsburgh, PA *Associate*
2017 - 2018	**Human-Computer Interaction Institute,** Carnegie Mellon University, Pittsburgh, PA *Graduate Student Researcher* with John Stamper
2018	**LearnLab Summer School**, Carnegie Mellon University, Pittsburgh, PA *Participant, Educational Data Mining track*

2016 - 2018 **Open Education Group**, Brigham Young University, Provo, UT
OER Research Fellow

2015 - 2018 **Center for Open Education**, Hokkaido University, Sapporo, Japan
Research Collaborator

2017 **Open Learning Initiative**, Stanford University, Stanford, CA
Learning Engineer Intern with Candace Thille

2015 - 2016 **Fujitsu/Hokkaido University**, Sapporo, Japan
Research Fellow

2014 - 2016 **Center for Open Education**, Hokkaido University, Sapporo, Japan
Instructional Designer / Project Manager

2014 - 2015 **Innovation Nippon**, Tokyo, Japan
Research Assistant with Tomoaki Watanabe

2013 - 2014 **International Christian University**, Tokyo, Japan
Undergraduate Research Assistant with Masako Miyahara & Atsuko Watanabe

2013 - 2014 **International Christian University**, Tokyo, Japan
Undergraduate Research Assistant 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 widely and publicly 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, 2023 **Understanding and Supporting Human Learning with Advanced Technology,** in *EduTech 1* (lecture), Saarland University

2022, 2023 **Understanding and Supporting Human Learning with Advanced Technology,** in *Perspectives of Computer Science* (lecture), Saarland University

Mentoring

Saarland

2024 - present **Lisa Siegrist** (Master's student in Educational Technology at Saarland)
2024 - present **Qingzhi Zhang** (Undergraduate student in Media Informatics at Saarland)
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 - present **Ilja Steinbach** (Middle-school student at Gymnasium am Schloss)
2023 - present **Man "Echo" Su** (Postdoctoral researcher at Saarland University)
2023 - present **Johann Winternheimer** (Middle-school student at Gymnasium am Schloss)
2023 **Benjamin Ridder** (High-school student at Gymnasium am Schloss)
2023 **Martina Vincoli** (Master's student in HCI at Trento University, currently intern at EPFL)

CMU

2022 - 2023 **Cindy Liu** (Undergraduate student at CMU, currently master's student at Stanford)
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, currently at Figma)
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, currently at Amazon)
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 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)