

Tomohiro Nagashima

5000 Forbes Ave, Pittsburgh, PA 15213
 Email: t nagashi[at]cs.cmu.edu | Web: http://tomonag.org

EDUCATION

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|----------------|---|
| 2017 – present | Ph.D. in Human-Computer Interaction
Carnegie Mellon University, Pittsburgh, PA
Advisor: Vincent Aleven |
| 2017 – 2020 | M.S. in Human-Computer Interaction
Carnegie Mellon University, 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

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| 2020 | Fred Mulder Best Open Education Practice Award, Global OER Graduate Network |
| 2020 | Nova Southeastern Award for Outstanding Practice in Instructional Design, Association for Educational Communications and Technology |
| 2019 | Doctoral Consortium Fellowship (Travel fellowship for LAK19), Society for Learning Analytics Research |
| 2018 | Virtually Connecting Scholarship (Travel scholarship for OpenEd18), Virtually Connecting |
| 2018 | Honorable Mention, Open Education Awards of Excellence, Open Education Consortium |
| 2018 | Creative Commons Summit 2018 Travel Scholarship, Creative Commons |
| 2017 | Creative Commons Summit 2017 Travel Scholarship, Creative Commons |
| 2016 | OER Research Fellowship, Open Education Group |
| 2016 | Study Abroad Scholarship, Rotary International |
| 2016 | Merit-based Tuition Fellowship, Stanford Graduate School of Education |
| 2013 | Study Abroad Scholarship, Japan Business Federation |
| 2011-12 | Dean's List, International Christian University |

PEER-REVIEWED PUBLICATIONS (an asterisk (*) indicates a mentored student)

Journal Papers

- J1. Nagashima, T. & Hrach, S. (under review). Motivating factors among university faculty for adopting Open Educational Resources: Incentives matter.
- J2. Shigeta, K., Yagi, H., Nagashima, T., Hamada, M., Miyazaki, T., Kobayashi, K., and Shima, M. (2015). Cooperative liberal arts education and flipped classroom implementation using MOOC. *Journal of Digital Practices* 6(2), 89-96. (in Japanese)
- J3. 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.

Papers in Conference Proceedings

- C1. Nagashima, T., *Yadav, G., & Aleven, V. (under review). A framework to guide technology-based educational studies in the evolving classroom environment.

- C2. [Nagashima, T.](#), Lawrence, L., Bartel, A. N., & Alevan, V. (under review). Remote technology-based educational research in varying learning environments: Implications on students' well-being and participation.
- C3. [Nagashima, T.](#), Bartel, A. N., *Tseng, S., Vest, N.A., Silla, E. M., Alibali, M. W., & Alevan, V. (2021). Scaffolded self-explanation with visual representations promotes efficient learning in early algebra. In *Proceedings of the Annual Meeting of the Cognitive Science Society (CogSci2021)*.
- C4. [Nagashima, T.](#), Bartel, A. N., *Yadav, G., *Tseng, S., Vest, N.A., Silla, E. M., Alibali, M. W., & Alevan, V. (2021). Using anticipatory diagrammatic self-explanation to support learning and performance in early algebra. In *Proceedings of the Annual Meeting of the International Society of the Learning Sciences (ISLS2021)*, Bochum, Germany [acceptance rate: 33%].
- C5. [Nagashima, T.](#), *Yadav, G., & Alevan, V. (2021). Rethinking technology-based educational studies in the evolving classroom environment: An interview study with US teachers. In *Proceedings of the Annual Meeting of the International Society of the Learning Sciences (ISLS2021)*, Bochum, Germany.
- C6. Bartel, A. N., Silla, E. M., Vest, N.A., [Nagashima, T.](#), Alevan, V., & Alibali, M. W. (2021). Reasoning about equations with tape diagrams: insights from math teachers and college students. In *Proceedings of the Annual Meeting of the International Society of the Learning Sciences (ISLS2021)*, Bochum, Germany [acceptance rate: 30%].
- C7. Yang, K., [Nagashima, T.](#), Yao, J., Williams, J.J., Holstein, K., & Alevan, V. (2021). Can crowds make a good thing better, with minimal expert guidance? A step-by-step analysis of a teacher-guided crowd revision pipeline. *ACM Conference on Computer-Supported Collaborative Work and Social Computing (CSCW2021)*.
- C8. [Nagashima, T.](#), Bartel, A. N., Silla, E. M., Vest, N. A., Alibali, M. W., & Alevan, V. (2020). Enhancing conceptual knowledge in early algebra through scaffolding diagrammatic self-explanation. In M. Gresalfi & I. S. Horn (Eds.), *Proceedings of International Conference of the Learning Sciences* (pp. 35-43). Nashville, TN: International Society of the Learning Sciences. [acceptance rate: 38%].
- C9. [Nagashima, T.](#), *Yang, K., Bartel, A. N., Silla, E. M., Vest, N. A., Alibali, M. W., & Alevan, V. (2020). Pedagogical Affordance Analysis: Leveraging teachers' pedagogical knowledge for eliciting pedagogical affordances and constraints of instructional tools. (pp. 1561-1564). In M. Gresalfi & I. S. Horn (Eds.), *Proceedings of International Conference of the Learning Sciences* (pp. 35-43). Nashville, TN: International Society of the Learning Sciences.
- 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).
- C11. 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).
- C12. 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)
- C13. 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.
- C14. [Nagashima, T.](#), Yagi, H., & Shigeta, K. (2015). The value of delivering MOOC as OER. In *Proceedings of the Annual Conference for Japan Association for Educational Media*, Tokyo. (in Japanese)

- C15. 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)
- C16. 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)
- C17. 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)
- C18. [Nagashima, T.](#) (2013). Open educational resources in higher education: A global perspective. In *Proceedings of the International Conference for Media in Education*, Aichi.

Abstracts

- 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? In *Proceedings of the 42nd Annual Meeting of the Cognitive Science Society*, Toronto, Canada.

Doctoral Consortia

- D1. [Nagashima, T.](#) (2019). Towards enhancing conceptual knowledge in algebra through diagrammatic self-explanation. In *Companion Proceedings of the 9th International Learning Analytics and Knowledge Conference (LAK19)*. Tempe, AZ.
- D2. [Nagashima, T.](#) (2018). Contextualized instruction in data science and its effect on transfer of learning. In *Proceedings of the 13th European Conference on Technology Enhanced Learning (EC-TEL)*. Leeds, UK.

OTHER PUBLICATIONS

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- O1. [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)
- O2. 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*.
- O3. Shigeta, K. & [Nagashima, T.](#) (2016). Envisioning the future of open education: a perspective from the non-English-speaking world. *FutuOER*.
- O4. [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)
- O5. [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)
- O6. 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)

PEER-REVIEWED CONFERENCE PRESENTATIONS

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- T1. Vest, N. A., Silla, E. M., Bartel, A. N., Nagashima, T., Alevan, V. & Alibali, M. W. (2021). Learning from worked examples: Conceptually rich explanations predict conceptual gains. *The Society for Research in Child Development Biennial Meeting*.
- T2. Bartel, A. N., Silla, E. M., Vest, N. A., Nagashima, T., Tang, Y., Alevan, 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.
- T3. Nagashima, T., Bartel, A., Silla, E., Vest, N., Alibali, M., & Alevan, V. (2020). Collaborative open educational practices: sharing evidence-based Open Educational Resources to facilitate meaningful adaptation. Open Education Conference.
- T4. 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.
- T5. Nagashima, T. & Stamper, J. (2018). Contextualized instruction with OER: Examining the Remix Hypothesis. Open Education Conference, NY.
- T6. 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
- T7. 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)
- T8. 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)
- T10. 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)
- T11. 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.
- T12. 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)
- T13. 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)
- T14. 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.
- T15. Nagashima, T. (2015). What do we really mean by “open”? SIG Session, Annual Conference for Japan Society for Educational Technology, Tokyo. (in Japanese)
- T16. Nagashima, T. (2015). Running open MOOC: Experience from Hokkaido University. Academic Exchange for Information Environment and Strategy Seminar, Sapporo. (in Japanese)

INVITED TALKS

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

GRANTS RECEIVED

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| 2020-2022 | Japan Society for the Promotion of Science (Grant-in-Aid for Scientific Research: B)
Title: Developing data-informed OER improvement system
<i>Co-PI</i> with Katsusuke Shigeta, Toshiyuki Takeda, Daisuke Kaneko, and Hidefumi Yagi |
| 2015-2018 | Japan Society for the Promotion of Science (Grant-in-Aid for Scientific Research: B)
Title: Leveraging learning analytics to improve teaching and learning with MOOC
<i>Co-PI</i> with Katsusuke Shigeta, Toshiyuki Takeda, Hideki Mori, Daisuke Kaneko, Yasuhiro Hayashi, and Hidefumi Yagi |

PROFESSIONAL EXPERIENCES

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|--------------|---|
| 2020 | LearnLab Summer School , Carnegie Mellon University, Pittsburgh, PA
<i>Mentor, Intelligent Tutoring System track</i> |
| 2018-present | Human-Computer Interaction Institute , Carnegie Mellon University, Pittsburgh, PA
<i>Graduate Researcher</i> with Vincent Aleven and Martha Alibali (University of Wisconsin-Madison) |
| 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 Researcher</i> with John Stamper |
| 2018 | LearnLab Summer School , Carnegie Mellon University, Pittsburgh, PA
<i>Participant in the Educational Data Mining track</i> |
| 2016-18 | Open Education Group , Provo, UT
<i>OER Research Fellow</i> |
| 2015-19 | Center for Open Education , Hokkaido University, Sapporo, JAPAN
<i>Research Collaborator</i> |
| 2016-17 | Open Learning Initiative , Stanford University, Stanford, CA
<i>Learning Engineer Intern</i> with Candace Thille |

- 2015-16 **Fujitsu/Hokkaido University**, Sapporo, Japan
Research Fellow
- 2015-16 **Open Policy Network**, Creative Commons, Mountain View, CA
Researcher
- 2014-16 **Center for Open Education**, Hokkaido University, Sapporo, JAPAN
Instructional Designer / Project Manager
- 2014-15 **Innovation Nippon**, Tokyo, JAPAN
Research Assistant with Tomoaki Watanabe
- 2013-14 **International Christian University**, Tokyo, JAPAN
Research Assistant with Masako Miyahara & Atsuko Watanabe
- 2013-14 **International Christian University**, Tokyo, JAPAN
Research Assistant with Insung Jung

TEACHING & MENTORING EXPERIENCES

Teaching

- 2018 **Carnegie Mellon University**, Pittsburgh, PA
Teaching Assistant with John Stamper and Adam Perer
Course Title: Interactive Data Science (Fall 2018, 70 students)
- Taught 4 lectures on experimental design and data analysis, graded assignments, and helped students with data science 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)
- Designed assignments and quizzes, managed online discussions, helped learners with assignments
- 2014-16 **Center for Open Education**, Hokkaido University, Sapporo, JAPAN
Teaching Assistant with Katsusuke Shigeta
Course Title: Introduction to Information Science
- Designed course materials (lectures and assignments), facilitated classroom discussions, graded assignments

Student Mentoring

- 2020-present **Jeff Chen** (Undergraduate student at CMU)
REU Intern & Research Assistant for "Gamification for ITS"
- 2020-present **Xinying Hu** (Graduate student at CMU, now PhD student at the University of Michigan)
Independent Study and Extern Research Assistant for "Gamification for ITS"
- 2020-present **Xiaoying Meng** (Undergraduate student at CMU)
Research Assistant for "Gamification for ITS"
- 2020-present **Stephanie Tseng** (Undergraduate student at CMU)
Research Assistant for "Promoting Conceptual and Procedural Knowledge with ITS"
- 2020-present **Sihan Wu** (Undergraduate student at CMU)
Independent Study for "Gamification for ITS"
- 2019-present **John Britti** (Graduate student at Georgia Tech)
REU Intern & Research Assistant for "Gamification for ITS"
- 2019-present **Xiran Wang** (Undergraduate student at CMU)

Research Assistant for “Gamification for ITS”

- 2020 **Ruitao Li** (Undergraduate student at CMU)
Research Assistant for “Promoting Conceptual and Procedural Knowledge with ITS”
- 2020 **Jordan Love** (Undergraduate student at University of Kansas)
REU Intern for “Gamification for ITS”
- 2020 **Gautam Yadav** (Graduate student at CMU, now Learning Engineer at CMU HCII)
Research Collaborator for “Promoting Conceptual and Procedural Knowledge with ITS”
- 2020 **Junhui Yao** (Graduate student at CMU)
Research Assistant for “Promoting Conceptual and Procedural Knowledge with ITS”
- 2020 **Alan Zhao** (Undergraduate student at Pomona College)
REU Intern for “Promoting Conceptual and Procedural Knowledge with ITS”
- 2019 **Evan Fang** (Undergraduate student at CMU)
Research Assistant for “Promoting Conceptual and Procedural Knowledge with ITS”
- 2019 **Emilie Guermeur** (Undergraduate student at CMU)
Independent Study for “Promoting Conceptual and Procedural Knowledge with ITS”
- 2019 **Trula Rael** (Undergraduate student at Harvard University)
REU Intern for “Promoting Conceptual and Procedural Knowledge with ITS”
- 2019 **Kexin Yang** (Graduate student at CMU, now PhD student at CMU HCII)
Research Assistant for “Promoting Conceptual and Procedural Knowledge with ITS”

PRACTITIONER RESOURCES & OPEN EDUCATIONAL RESOURCES (OER)

- 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>

ACADEMIC SERVICE

- 2018-present **Japan Society for Educational Technology**, Tokyo, JAPAN
Core Member, Game Learning and Open Education Special Interest Group (JSET SIG-05)
- 2017-present **Global OER Graduate Network**, The Open University, Milton Keynes, UK
Member
- 2016-17 **The Rotary Club of Los Altos**, Los Altos, CA
Honorary Member
- 2014-present **OER World Map**, Köln, GERMANY
Country Champion of Japan
- 2013 **International Christian University**, Tokyo, JAPAN
Organizer, Senior Thesis Poster Session Program
- 2012-present **Creative Commons Japan (CommonSphere)**, Tokyo, JAPAN
Member

Journal and Conference Reviewing

ACM Conference on Human Factors in Computing Systems (CHI)
Annual Meeting of the International Society of the Learning Sciences (ISLS)
European Conference on Technology Enhanced Learning (EC-TEL)
International Conference of the Learning Sciences (ICLS)
International Learning Analytics and Knowledge Conference (LAK)
International Review of Research in Open and Distributed Learning (IRRODL)
Open Education Conference (OpenEd)

Membership

Cognitive Science Society
International Society of the Learning Sciences
Japanese Society for Educational Technology