

# SEIJI ISOTANI

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HARVARD GRADUATE SCHOOL OF EDUCATION

<https://www.gse.harvard.edu/faculty/seiji-isotani>

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Longfellow 311, 13 Appian Way

UNIVERSITY OF SAO PAULO

Cambridge, MA 02138

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## ACADEMIC POSITIONS

### HARVARD UNIVERSITY

**Faculty Associate** (Sept. 2023 - present)  
The Berkman Klein Center for Internet & Society

**Visiting Professor of Education** (Jul. 2022 - present)  
Learning Design, Innovation, and Technology Program  
Graduate School of Education

### UNIVERSITY OF SAO PAULO

**Professor of Computer Science and Learning Technology** (Jan. 2019 - present)  
Institute of Mathematics and Computer Science

**Associate Professor of Computer Science and Learning Technology** (Dec. 2014- Dec. 2018)  
Institute of Mathematics and Computer Science

**Assistant Professor of Computer Science** (Apr. 2011 – Nov. 2014)  
Institute of Mathematics and Computer Science

### CARNEGIE MELLON UNIVERSITY

**Postdoctoral Fellow** (Oct. 2009 – Mar. 2011)  
Human-Computer Interaction Institute  
School of Computer Science

## EDUCATION

**Ph.D. in Information Engineering**, Sep. 2009  
The Institute of Scientific and Industrial Research  
Osaka University, Japan  
Advisor: Professor Riichiro Mizoguchi

**Master of Science in Computer Science**, Apr. 2005  
Institute of Mathematics and Statistics  
University of Sao Paulo, Brazil  
Advisor: Professor Leonidas de Oliveira Brandao

**Bachelor of Science in Computer Science**, Dec. 2002  
Institute of Mathematics and Statistics  
University of Sao Paulo, Brazil

## EDUCATIONAL POLICY AND PRACTICE LEADERSHIP POSITIONS

**National Evaluation Committee** (Co-Chair, 2020 – Jun. 2022; Member, Jul. 2022 - present)

*National Council for Scientific and Technological Development (CNPq) - Brazil*

Responsible for (i) evaluating undergraduate research programs across the country; (ii) designing policies to improve research, practice, and innovation; (iii) defining criteria and guidelines to recommend government funding for undergraduate research.

**Policy Advisor and Leadership** (2021 – 2022)

*National Council for Education (CNE) - Brazil*

Responsible for leading a group of 100 experts in Brazil (researchers, computer scientists, K-12 teachers, educators, policymakers, and others) to create the national standard for K-12 computer science education on Brazilian National Common Core Curriculum (BNCC)

**Policy Advisor and Leadership** (2017 – present)

*Ministry of Education - Brazil*

Responsible for advising the Brazilian Ministry of Education, especially about policies for K-12 education and digital transformation. Some of the policies are the Brazilian National Common Core Curriculum (BNCC), High School Educational Reform, National Policy of Education Recovery, National Textbook Program, Brazilian Innovation Network for Blended Learning, Connected Education Innovation Policy, and National Education Plan.

**Educational Technology Advisory Board** (2019 – 2022)

*State of São Paulo - Brazil*

Responsible for advancing digital education in the state. Some activities include formulating and monitor the implementation of policies and strategies to integrate technologies in schools. Also advise the state government on matters related to digital literacy, infrastructure for online learning, and the effective use of educational technology.

**City Council of Education** (2012 – 2016)

Member of the Sao Carlos City Council of Education responsible for formulating and recommending policies, monitoring the implementation of educational programs, and providing advisory support to the municipal government on educational matters.

## LEADERSHIP POSITIONS AT THE UNIVERSITY OF SAO PAULO

- **Representative** of Full Professors at the Institute Council at ICMC (2019 - 2022)
- **Director** of the Professional Education Program in Educational Technology (2018 - 2023)
- **Deputy Head** of the Department of Computer Systems (2016-2018)
- **President** of the Office for Outreach Programs at ICMC (2016-2017)
- **President** of the International Relations Office at ICMC (2014-2015)
- **Head** of the Graduate Admissions Committee at ICMC (2014-2023)
- **Co-Founder** and head of the Applied Computing in Education Laboratory (2012 – present)

## LEADERSHIP POSITIONS IN THE SCIENTIFIC COMMUNITY

**Executive Committee** (2022 - present)

*International Artificial Intelligence in Education Society* <https://iaied.org/about>

**Board of Directors** (2023 - present)

*Center of Innovation for Brazilian Education (CIEB)* <https://cieb.net.br/quem-somos/#governanca>

**Invited Research Appointments**

*Beijing Normal University; Pompeu Fabra University; Tokyo Institute of Technology*

## HONORS AND AWARDS

- 2<sup>nd</sup> Best Ph.D. Thesis in Computer Science - Brazilian Computer Society 2023  
Advisee: Luiz Antonio Lima Rodrigues
- Certificate of Recognition - Undergraduate Teaching Excellence - ICMC-USP 2022
- Certificate of Recognition - Undergraduate Teaching Excellence - IFSC-USP 2021
- 2<sup>nd</sup> Best Paper Award, Brazilian Symposium on Computers in Education 2020
- Best Paper Award, IEEE International Conference on Advanced Learning Technologies (IEEE ICALT) 2019
- Best Ph.D. Thesis in Educational Technology – Brazilian Computer Society 2019  
Advisee: Rachel C. D. Reis
- Best Ph.D. Thesis in Educational Technology – Brazilian Computer Society 2018  
Advisee: Simone S. Borges
- Best Paper Award, Brazilian Symposium on Computers in Education 2017
- 2<sup>nd</sup> Best M.Sc. Thesis in Educational Technology – Brazilian Computer Society 2017  
Advisee: Kamila K. Lyra
- Best Educational App developed by the Public Sector, ARede Educa 2016
- Best Paper Award, Brazilian Symposium on Computers in Education 2016
- 3<sup>rd</sup> Best M.Sc. Thesis in Educational Technology – Brazilian Computer Society 2016  
Advisee: Lais Zagatti Pedro
- ACM Senior Member and Distinguished Speaker 2015
- Best Paper Award, Brazilian Symposium on Computers in Education 2015
- Best M.Sc. Thesis in Educational Technology – Brazilian Computer Society 2015  
Advisee: Helena M. Reis
- CNPq Fellow, National Council for Scientific and Technological Development (currently in tier DT-1D) 2014
- IEEE Senior Member 2014
- Innovation Award in Education, Brazilian Association of Software Companies 2014
- Award for Excellence in Undergraduate Teaching, University of Sao Paulo 2013
- Santander Science and Innovation Award 2013  
Category: Information and Communication Technology
- Best Paper Award, Workshop of Informatics at School 2010
- IEEE Student Leadership Award, IEEE Education Society 2009
- IBM Ph.D. Scholarship Award 2008
- Upsilon Pi Epsilon/IEEE Computer Society Award for Academic Achievement 2008
- 2<sup>nd</sup> Place in the Graduate Category at the ACM Student Research Competition – ACM Technical Symposium on Computer Science Education (SIGCSE) 2007
- Best Paper Award, Doctoral Colloquium of the Workshop on Groupware 2007
- Best Student Paper Award, Int. Conf. on Computers in Education (ICCE) 2006
- Best M.Sc. Dissertation award in the Field of Educational Technology 2006  
Brazilian Computer Society.

## RESEARCH INTERESTS

I am dedicated to advancing the science of **how people learn with Artificial Intelligence (AI) and adaptive technologies**, such as intelligent tutoring systems. My research focuses on unraveling potential mechanisms to ensure that every student receives the personalized support needed for engaging and meaningful educational experiences. **My scientific and social mission is to transform research findings into social impact** by conceptualizing educational practices, AI technologies, and policies. These are designed to accelerate the benefits, adoption, and impact of evidence-based approaches, addressing key challenges in our society, particularly in education.

My long-term vision is to unleash the enormous potential of AI technologies to aid students, teachers, and policymakers in reaching their maximum potential. I am committed to significantly contributing to our understanding of how to best personalize K–16 learning at scale in STEM domains, with a particular focus on the context of the Global South.

The research topics I am most excited about are:

- Artificial Intelligence in Education (e.g., Intelligent Tutoring Systems and education data mining)
- Gamification in Education
- Education Policy Design and Implementation
- Educational Technology
- STEM Education
- Diversity, Equity, Inclusion and Belonging
- Computer-Supported Collaborative Learning
- Ontology Engineering, Semantic Web and Linked Open Data

## GRANTS AND CONTRACTS

**2024 - 2028 Generative AI and deep learning for evaluation, feedback, and support in the development of writing skills**

Parana State Department of Education

Role: Co-Principal Investigator (Co-PI), together with Ig I. Bittencourt

Amount: ~ US\$4,500,000

**2023 – 2024 Algorithmic fairness in Brazilian education**

Lemann Brazil Research Fund

Role: Co-Principal Investigator (Co-PI), together with Flavio Calmon and Ig I. Bittencourt.

Amount: ~ US\$150,000

**2023 - 2024 AI pedagogical innovations across the disciplines**

Provost Fund for Interfaculty Collaboration - Harvard's seed fund

Role: Co-Applicant, together with Jeffrey Schnapp, David Atherton, Jessica Fjeld, Nien-hê Hsieh, Nicole Mills, Sarah Newman

Amount: ~ US\$20,000

**2021 – 2025 Brazilian Innovation Network for Blended Learning**

Ministry of Education (MEC/SEB/FNDE) and the World Bank

Role: Co-Principal Investigator (Co-PI), together with Ranilson Paiva, Ig I. Bittencourt, and Ibsen Bittencourt.

Amount: ~ US\$8,000,000

**2021 – 2025 +PNE Platform: a data-driven approach to support the development and assessment of sub-national education plans**

Ministry of Education (MEC/SEB/FNDE)

Role: Co-Principal Investigator (Co-PI), together with Rafael Ferreira, Ig I. Bittencourt, and Ibsen Bittencourt.

Amount: ~ US\$400,000

**2021 – 2024 Personalization process for gamification designs in educational contexts**

National Council for Scientific and Technological Development (CNPq)

Role: Principal Investigator (PI)

Amount: ~ US\$20,000

**2019 – 2022 Design and automatic detection of flow experience in students and teachers in gamified intelligent educational systems**

São Paulo Research Foundation (FAPESP)

Role: Principal Investigator (PI)

Amount: ~ US\$120,000

**2018 – 2022 Gamification of virtual learning environments: a narrative and user experience approach**

São Paulo Research Foundation (FAPESP)

Role: Principal Investigator (PI)

Amount: ~ US\$120,000

**2018 – 2021 Personalization of gamification in intelligent tutoring systems and its impact on learning**

National Council for Scientific and Technological Development (CNPq)

Role: Principal Investigator (PI)

Amount: ~ US\$15,000

**2018 – 2020 Scientific evidence's guide in educational technology**

Ministry of Education (MEC/SEB/FNDE)

Role: Co-Principal Investigator (Co-PI), together with Ig I. Bittencourt

Amount: ~US\$400,000

**2018 – 2020 Evidence-based evaluation of educational technologies and interactive Guide**

Ministry of Education (MEC/SEB/FNDE)

Role: Co-Principal Investigator (Co-PI), together with Ig I. Bittencourt

Amount: ~US\$420,000

**2018 – 2019 National Plan of Didactic Book (Interactive PNLD)**

Ministry of Education (MEC/SEB/FNDE)

Role: Co-Principal Investigator (Co-PI), together with Ig I. Bittencourt

Amount: ~US\$1,700,000

**2018 – 2019 Online professional development program to evaluate educational technologies**

Ministry of Education (MEC/SEB/FNDE)

Role: Co-Principal Investigator (Co-PI), together with Ig I. Bittencourt

Amount: ~US\$80,000

**2018 – 2019 Literacy of children with autism: a gamified technological approach**

São Paulo Research Foundation (FAPESP) and CAPES

Role: Principal Investigator (PI)

Amount: ~ US\$60,000

**2017 – 2020 Ecosystem for production and consumption of connected open data and its application in educational settings**

São Paulo Research Foundation (FAPESP) and Brazilian Ministry of Science and Technology

Role: Principal Investigator (PI)

Amount: ~ US\$60,000

**2017 – 2019 Linked Data Management**

São Paulo Research Foundation (FAPESP) and German Research Foundation

Role: Principal Investigator (PI), Co-PI: Thomas Riechert, Leipzig University of Applied Sciences, Germany)

Amount: ~ US\$100,000

**2016 – 2019 Gamify - Method to Apply Gamification Concepts in Software Processes and Educational Applications**

São Paulo Research Foundation (FAPESP)

Role: Principal Investigator (PI)

Amount: ~ US\$120,000

**2015-2016 Education for all: Sustainable Personalized Inclusive Distance Learning**

Santander Bank

Role: Co-Principal Investigator, PI: Alexandra I. Cristea, University of Warwick, UK

Amount: ~ US\$15,000

**2014-2016 Group formation using Affective States in Intelligent CSCL environments**

Brazilian National Council for Scientific and Technological Development (CNPq)

Role: Principal Investigator (PI)

Amount: ~ US\$70,000

**2014-2017 Research, Integration and Training of Professionals in Educational Technology and Software Engineering**

Ministry of Education (PROCAD/CAPES/MEC)

Role: Associated Researcher (PI: Jose C. Maldonado, University of Sao Paulo, Brazil)

Amount: ~ US\$370,000

**2014-2017 An Ontological Engineering Approach to Create High Performance Groups Using Gamification in Intelligent Educational Systems**

Brazilian National Council for Scientific and Technological Development (CNPq)

Role: Principal Investigator (Co-PI with Riichiro Mizoguchi, Osaka University, Japan)

Amount: ~ US\$200,000

**2013-2015 The use of gamification in intelligent educational systems based on Semantic Web to reduce the problem of externalizing inappropriate behaviors**

São Paulo Research Foundation (FAPESP)

Role: Principal Investigator (PI)

Amount: ~ US\$72,00

**2013-2016 InovaEnComp: Innovations in Computer Science Education**

University of Sao Paulo

Role: Principal Investigator (PI)

Amount: ~ US\$250,000

**2013-2022 Center for Research in Mathematical Sciences Applied to Industry**

São Paulo Research Foundation (FAPESP)

Role: Associated Researcher (PI: Jose A. Culminato, University of Sao Paulo, Brazil)  
Amount: ~ US\$ 4,617,445

#### 2013-2015 **Platform for Agile Development of Semantic Applications**

W3C Brazil

Role: Principal Investigator (together with Ig I. Bittencourt)

Amount: ~ US\$120,000

#### 2011-2014 **K-12 Mathematics Teaching and Learning Supported by Web Technologies**

São Paulo Research Foundation (FAPESP)

Role: Principal Investigator (PI)

Amount: ~US\$90,000

#### 2011-2014 **Study, Definition and Development of Computational Tools to Support Collaborative Learning in the Context of Mathematics Education**

Brazilian National Council for Scientific and Technological Development (CNPq)

Role: Principal Investigator (PI)

Amount: ~ US\$150,000

## **OUTREACH PROJECTS AND ENTREPRENEURSHIP**

2021 – 2022, “Development of the National K-12 Computer Science Curriculum Standard”

Appointed by the Brazilian National Council of Education, I led a team of 100 professionals from diverse backgrounds in Brazil, including university professors, computer scientists, K-12 educators, NGO Leaders, policymakers, and other stakeholders to formulate the national guidelines for the integration of computer science into the K-12 curriculum. The final document is available at <https://tinyurl.com/comp-bncc>.

2018 – present, “Computing in Education for Teachers”

In Brazil, most teachers in service were not formally trained to use educational technologies or computing techniques in their daily activities. Thus, this online training program presents several technologies to help teachers reimagine their practices to include technology in the classroom. We have already graduated hundreds of teachers from all regions of Brazil. And, a survey after a year of graduation, indicates that around 70% of our alumni have effectively incorporated educational technologies in their teaching practices.

2012 – 2019, “Computational Thinking: Transforming ideas into computer games”.

In this project, I was responsible for managing a group of 10 university students to teach kids (10 to 15 years old) to learn computational thinking. By the end of the project more than 1,000 kids have participated in our camps and workshops activities.

2012 – 2018, “Educational Technology Startups”

I am the co-founder of two startup companies in the areas of education and Semantic Web. Both received several innovation awards in national events and competitions. The startup called *MeuTutor* was the first Semantic Web-based intelligent tutoring system used on a large scale. It has been used by more than 300,000 students in Brazil. This technology was bought by one of the largest educational conglomerates in Brazil. The startup *Linkn - Linked Knowledge* has created the largest database of linked open data in Brazil and is helping state and federal governments to apply open data technology to increase transparency and efficiency of public services.

## PUBLICATIONS<sup>1</sup>

### JOURNALS

1. Bittencourt, I. I., Chalco, G., \*Santos, J., Fernandes, S., Silva, J., Batista, N., Hutz, C. & **Isotani, S.** (2023). Positive Artificial Intelligence in Education (P-AIED): A Roadmap. *International Journal of Artificial Intelligence in Education*, 1-61. <https://doi.org/10.1007/s40593-023-00357-y>
2. Ferreira, F. D., \*Rodrigues, L., Henklain, M. H. O., Freitas, H., Oliveira, D. F., Cristea, A. I., Carvalho, L., **Isotani, S.**, Benedict, A., Dorodchi, M., & Oliveira, E. H. T. (2023). Toward Human-AI Collaboration: A recommender System to Support CS1 Assignments and Exams. *IEEE Transactions on Learning Technologies* 16(3), 457-472. <http://dx.doi.org/10.1109/TLT.2022.3224121>
3. \*Oliveira, W., Hamari, J., & **Isotani, S.** (2023). The Relationship between Users' Behavior and Their Flow Experience in Gamified Systems. *Proceedings of the ACM on Human-Computer Interaction*, 7, 319-341. <https://doi.org/10.1145/3611032>
4. \*Santos, A. C. G., \*Oliveira, W., Hamari, J., Joaquim, S., & **Isotani, S.** (2023). The Consistency of Gamification User Types: A Study on the Change of Preferences over Time. *Proceedings of the ACM on Human-Computer Interaction*, 7, 1253-1281. <https://doi.org/10.1145/3611068>
5. Vasconcelos, A. N., Freires L. A., Loureto, G. D. L., Fortes, G., Costa, J. C. A., Torres, L. F. F., Bittencourt, I. I., Cordeiro, T. D., & **Isotani, S.** (2023). Advancing school dropout early warning systems: the IAFREE relational model for identifying at-risk students. *Frontiers in Psychology* 14(1189283), 1-17. <https://doi.org/10.3389/fpsyg.2023.1189283>
6. \*Palomino, P. T., \*Rodrigues, L., Luz, A., \*Toda, A., A. M., Nacke, L., & **Isotani, S.** Predicting user types with symbolic images: An empirical validation based on two card-sorting studies. (2023). *Entertainment Computing* 47, 100596-. <https://doi.org/10.1016/j.entcom.2023.100596>
7. Ferreira da Rocha, F. D., Lemos, B., Henrique de Brito, P., Santos, R., \*Rodrigues, L., **Isotani, S.**, Demerval, D. (2023). Gamification and open learner model: An experimental study on the effects on self-regulatory learning characteristics. *Education and Information Technologies*, 1-22. <https://doi.org/10.1007/s10639-023-11906-2>
8. Silva, L. C., Sobrinho, Á. A. C. C., Cordeiro, T. D., Melo, R. F., Bittencourt, I. I., Marques, L. B., Matos, D. D. M. C., Silva, A. P., **Isotani, S.** (2023). Applications of convolutional neural networks in education: A systematic literature review. *Expert System with Applications* 231(30), 120621-. <https://doi.org/10.1016/j.eswa.2023.120621>
9. Rabelo, A., Rodrigues, M. W., Nobre, C., **Isotani, S.**, & Zárata, L. (2023). Educational data mining and learning analytics: a review of educational management in e-learning. *Information Discovery and Delivery*, 1-15. <https://doi.org/10.1108/IDD-10-2022-0099>
10. Sobrinho, Á., Bittencourt, I. I., Silveira, A. C. M., Silva, A. P., Dermeval, D., Marques, L. B., Rodrigues, N. C. I., Souza, A. C. S., Ferreira, R., & **Isotani, S.** (2023). Towards Digital Transformation of the Validation and Triage Process of Textbooks in the Brazilian Educational Policy. *Sustainability* 15(7), 1-28. <https://doi.org/10.3390/su15075861>
11. \*Rodrigues, L., \*Palomino, P.T., \*Toda, A.M., Klock, A. C. T., Pessoa, M., Pereira, F. D., Oliveira, E. H. T., Oliveira, D. F., Cristea, A. I., Gasparini, I., & **Isotani, S.** (2023). How Personalization Affects

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<sup>1</sup> Most of my publications have my students or postdocs as first authors. An asterisk (\*) before a name indicates when the author was my student or postdoc.



Motivation in Gamified Review Assessments. *International Journal of Artificial Intelligence in Education*, 1-38. <https://doi.org/10.1007/s40593-022-00326-x>

12. \*Palomino, P. T., \*Toda, A. M., \*Rodrigues, L. A., \*Oliveira, W., Nacke, L., & **Isotani, S.** (2023). An ontology for modelling user profiles and activities in gamified education. *Research and Practice in Technology Enhanced Learning*, 18, 1-35. <https://rptel.apsce.net/index.php/RPTEL/article/view/2023-18018>
13. Rodrigues, L., Pereira, F. D., Marinho, M., Macario, V., Bittencourt, I. I., **Isotani, S.**, Demerval, Diego & Mello, R. (2023). Mathematics intelligent tutoring systems with handwritten input: a scoping review. *Education and Information Technologies*, 1-27. <https://doi.org/10.1007/s10639-023-12245-y>
14. \*Santos, A. C. G., Muramatsu, P. K., \*Oliveira, W., Joaquim, S., Hamari, J., & **Isotani, S.** (2023). Psychometric investigation of the gamification Hexad user types scale with Brazilian Portuguese adolescents speakers. *Scientific Reports*, 13(1), 1-9. <https://doi.org/10.1038/s41598-023-45544-y>
15. \*Oliveira, W., Hamari, J., Ferreira, W., Pastushenko, O., \*Toda, A., \*Palomino, P. T., & **Isotani, S.** (2023) Uncovering associations between users' behaviour and their flow experience, *Behaviour & Information Technology*, <https://doi.org/10.1080/0144929X.2023.2276822>
16. \*Santos, J., Bittencourt, I., Reis, M., Chalco, G., & **Isotani, S.** (2022). Two billion registered students affected by stereotyped educational environments: an analysis of gender-based color bias. *Humanities and Social Sciences Communications*, 9(1), 1-16. <https://doi.org/10.1057/s41599-022-01220-6>
17. \*Rodrigues, L. A. L., Pereira, F. D., \*Toda, A. M., \*Palomino, P. T., Pessoa, M. S. P., Carvalho, L. S. G., Fernandes, D., Oliveira, E. H. T., Cristea, A. I., & **Isotani, S.** (2022). Gamification suffers from the novelty effect but benefits from the familiarization effect: findings from a longitudinal study. *International Journal of Educational Technology in Higher Education*, 19, 1-25. <https://doi.org/10.1186/s41239-021-00314-6>
18. \*Oliveira, W., Hamari, J., Ferreira, W., \*Toda, A. M., \*Palomino, P. T., Vassileva, J., & **Isotani, S.** (2022). The effects of gender stereotype-based interfaces on users' flow experience and performance. *Journal of Computers in Education*, 1-26. <https://doi.org/10.1007/s40692-022-00249-5>
19. Jogo, D. A., Chalco, G. C., Pinto, I. I. B. S., Reis, M., Silva, L. R., & **Isotani, S.** (2022). Investigating how gamified syllabic literacy impacts learning, flow and inappropriate behaviors: a single-subject study design. *International Journal of Child-Computer Interaction*, 33, 1-14. <https://doi.org/10.1016/j.ijcci.2022.100458>
20. \*Santos, J., Andrade, E., Benevides, K., Silva, K., Nascimento, J., Bittencourt, I., Pereira, M., Fernandes, S., & **Isotani, S.** (2022). Does gender stereotype threat affects the levels of aggressiveness, learning and flow in gamified learning environments?: An experimental study. *Education and information technologies*, 28, 1-26. <https://doi.org/10.1007/s10639-022-11220-3>
21. \*Rodrigues, L. A. L., \*Toda, A. M., \*Santos, W. O. dos, \*Palomino, P. T., Vassileva, J., & **Isotani, S.** (2022). Automating gamification personalization to the user and beyond. *IEEE Transactions on Learning Technologies*, 15( 2), 199-212. <https://doi.org/10.1109/TLT.2022.3162409>
22. \*Lima, D. A., & **Isotani, S.** (2022). Systematic map and review of Google Classroom usage during the Covid-19 pandemic: an analysis by data clustering approach. *Revista Brasileira de Informática na Educação*, 30, 20-49. <https://doi.org/10.5753/rbie.2022.2204>

23. \*Oliveira, W., Hamari, J., Shi, L., \*Toda, A. M., \*Rodrigues, L., \*Palomino, P. T., & **Isotani, S.** (2022). Tailored gamification in education: A literature review and future agenda. *Education and Information Technologies*, 28, 1-34. <https://doi.org/10.1007/s10639-022-11122-4>
24. \*Rodrigues, L. A. L., Pereira, F. D., \*Toda, A. M., \*Palomino, P. T., \*Santos, W. O. dos, Pessoa, M. S. P., Carvalho, L. S., Oliveira, D. B., Oliveira, E. H. T., Cristea, A. I., & **Isotani, S.** (2022). Are they learning or playing?: moderator conditions of gamification's success in programming classrooms. *ACM Transactions on Computing Education*, 22( 3), 1-27. <https://doi.org/10.1145/3485732>
25. \*Penteado, B. E., Maldonado, J. C., & **Isotani, S.** (2022). Methodologies for publishing linked open government data on the Web: a systematic mapping and a unified process model. *Semantic Web*, 13, 1-26. <https://doi.org/10.3233/SW-222896>
26. \*Oliveira, W., \*Hamari, J., Joaquim, S., \*Toda, A. M., \*Palomino, J. V., & **Isotani, S.** (2022). The effects of personalized gamification on students' flow experience, motivation, and enjoyment. *Smart Learning Environments*, 9(16), 1-26. <https://doi.org/10.1186/s40561-022-00194-x>
27. \*Santos, A. C. G., \*Oliveira, W., Altmeyer, M., Hamari, J., & **Isotani, S.** (2022). Psychometric investigation of the gamification Hexad user types scale in Brazilian Portuguese. *Scientific Reports*, 12(4920), 1-11. <https://doi.org/10.1038/s41598-022-08820-x>
28. \*Santos, A. C. G., \*Oliveira, W., Hamari, J., \*Rodrigues, L., \*Toda, A. M., \*Palomino, P. T., & **Isotani, S.** (2021). The relationship between user types and gamification designs. *User Modeling and User-Adapted Interaction*, 1-34. <https://doi.org/10.1007/s11257-021-09300-z>
29. \*Oliveira, W., \*Tenório, K., Hamari, J., Pastushenko, O., & **Isotani, S.** (2021). Predicting students' flow experience through behavior data in gamified educational systems. *Smart Learning Environments*, 8(30), 1-18. <https://doi.org/10.1186/s40561-021-00175-6>
30. Pereira, F. D., Fonseca, S. C., Oliveira, E. H., Cristea, A. I., Bellhäuser, H., \*Rodrigues, L., Oliveira, D. B. F., **Isotani, S.** & Carvalho, L. S. (2021). Explaining individual and collective programming students' behaviour by interpreting a black-box predictive model. *IEEE Access*, 9, 117097-117119. <https://doi.org/10.1109/ACCESS.2021.3105956>
31. \*Reis, H. M., Alvares, D., Jaques, P. A., & **Isotani, S.** (2021). A Proposal of Model of Emotional Regulation in Intelligent Learning Environments. *Informatics in Education*, 20(2), 317-332. <https://doi.org/10.15388/infedu.2021.15>
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16. Santos, W. O., Silva, A. P., Bittencourt, I. I., & **Isotani, S.** (2018). Flow-Tutor-Daredevil. Number: BR512018000923-9. National Institute of Industrial Property (INPI - Instituto Nacional da Propriedade Industrial).
17. Santos, W. O., Bittencourt, I. I., Silva, A. P., & **Isotani, S.** (2018). Flow-Tutor-Mastermind. Number: BR512018000954-9. National Institute of Industrial Property (INPI - Instituto Nacional da Propriedade Industrial).
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  26. Cruz, W. M., & **Isotani, S.** (2016). Day2Day: A tool to assist caregivers to report daily records. (*Day2Day: Uma ferramenta para auxiliar cuidadores nos registros diários*). Number: BR512017000881-7. National Institute of Industrial Property (INPI - Instituto Nacional da Propriedade Industrial).
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  29. Reis, H. M. , Cruz, W. M. , Faria, D. S., & **Isotani, S.** (2014). GeoTouch: Interactive Geometry App for Mobile Devices. (*GeoTouch: Sistemas de Geometria Interativa para Dispositivos Móveis*). Number: BR512018000818-6. National Institute of Industrial Property (INPI - Instituto Nacional da Propriedade Industrial).
  30. Holanda, O., Bittencourt, I. I. , Silva, A. P. , Tenório, T. , & **Isotani, S.** (2014). JOINT-DE: A System of Object-Ontology Mapping with support to offline objects. (*JOINT-DE: Um Sistema de Mapeamento Objeto-Ontologia com Suporte a Objetos Desconectados*). Number: BR512018000501-2. National Institute of Industrial Property (INPI - Instituto Nacional da Propriedade Industrial).
  31. Holanda, O., **Isotani, S.**, Silva, A. P., Bittencourt, I. I., & Tenório, T. (2013). JOINT: Java ontology integrated toolkit. Number: BR512018000500-4. National Institute of Industrial Property (INPI - Instituto Nacional da Propriedade Industrial).

## DEVELOPMENT OF OPEN SOURCE SOFTWARE

- GeoTouch: Dynamic Geometry for Mobile Devices  
Link to App: <https://goo.gl/fvG4PJ>  
Source Code: <https://github.com/helenamcd/tgeo>  
Video: <https://www.youtube.com/watch?v=iO60mSXRO54>
- Java Ontology Integrated Toolkit  
Source Code: <http://jointnees.sourceforge.net/>  
Video: <https://www.youtube.com/watch?v=scQqPGJo214>
- Gamified Educational System  
Source Code: <https://github.com/laiszp/egame/tree/master/Egame>

## EXPERIENCE IN THE DESIGN/IMPLEMENTATION OF EDUCATION POLICIES

- K-12 Computer Science Curriculum Guidelines in Brazil  
[http://portal.mec.gov.br/index.php?option=com\\_docman&view=download&alias=235511-pceb002-22&category\\_slug=fevereiro-2022-pdf&Itemid=30192](http://portal.mec.gov.br/index.php?option=com_docman&view=download&alias=235511-pceb002-22&category_slug=fevereiro-2022-pdf&Itemid=30192)
- Brazilian Innovation Network for Blended Learning  
<https://pesquisa.in.gov.br/imprensa/jsp/visualiza/index.jsp?data=10/11/2022&jornal=515&pagina=132&totalArquivos=220>
- National Policy for Learning Recovery in Basic Education  
[http://www.planalto.gov.br/ccivil\\_03/\\_ato2019-2022/2022/decreto/D11079.htm](http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2022/decreto/D11079.htm)
- Digital educational resources guide of the State of São Paulo  
<https://www.guiadetecnologia.educacao.sp.gov.br/>
- Evaluation of educational technologies  
<https://tecnologiaeducacional.mec.gov.br/>
- Online professional development programs to use and evaluate educational technologies -  
<https://avamec.mec.gov.br/#/instituicao/ufal/curso/1741/informacoes>
- Evidence-based Educational Policies  
<https://evidencias.mec.gov.br/>
- Interactive Guide of PNLD (National Plan for Didactic Books)  
<https://pnld.nees.ufal.br/>
- Normative Platform  
<https://normativasconselhos.ifal.edu.br/>
- Platform +PNE: National Educational Plan (design of the policy have started in Oct. 2021)
- Digital PNLD (design of the policy have started in Dec. 2021)

## PROFESSIONAL ACTIVITIES

### COMMITTEES AT THE HARVARD GRADUATE SCHOOL OF EDUCATION

- ED.M. Degree Program - Learning Design, Innovation, and Technology (LDIT) Advising (2022 - present) and admissions (2022 - 2023)
- AI and Education Workgroup (2023 - present)

### STEERING COMMITTEE

- Special Committee on Computers in Education, Brazilian Computer Society / Comissão Especial de Informática na Educação (CEIE), Sociedade Brasileira de Computação -  
<https://ceie.sbc.org.br/> (2013 - 2016)

### EDITORIAL BOARD

- Guest Editor
  - International Journal of Artificial Intelligence in Education (2023 – present)
- Associate Editor
  - Frontiers of Artificial Intelligence (2019 – present)
  - IEEE Transactions of Learning Technologies (2016 – 2019)
- Editor in Chief
  - Brazilian Journal of Computers in Education / Revista Brasileira de Informática na Educação (2013-2016)
- Board Member
  - International Journal of Learning Technology (2016 – 2019)

- IEEE Multidisciplinary Engineering Education Magazine (2007 – 2010)
- INFOCOMP (2006 – 2010)

#### ORGANIZING COMMITTEE (*not exhaustive*)

- International Conference on Artificial Intelligence in Education. 2019, 2022, 2023
- Brazilian-German Frontiers of Science and Technology Symposia (BRAGFOST) - Augmented Intelligence and Education. 2020.
- ACM Symposium on Applied Computing. 2019
- Science and Technology National Week – USP. 2017
- Joint Seminar on Ontology Research in Brazil (Ontobras), 2016
- ACM Symposium on Applied Computing (SAC) – Technical Track on Intelligent, Interactive and Innovative Educational Environments, 2011, 2014, 2015, 2016
- Ontobras - Seminar on Ontology Research in Brazil. 2016
- Brazilian-German Frontiers of Science and Technology Symposium. 2015
- School of Computers in Education. 2015
- Pint of Science Brazil. 2015
- Workshop on Intelligent and Innovative Support for Collaborative Learning Activities in conjunction with the International Conference on CSCL, 2009
- Brazilian Symposium on Computers in Education, 2009
- Brazilian Workshop on Semantic Web and Education in conjunction with the Brazilian Symposium on Informatics in Education, 2007 to 2015
- And others

#### PROGRAM COMMITTEE (*not exhaustive*)

- International Conference on Artificial Intelligence in Education (AIED)
- International Conference on Intelligent Tutoring Systems (ITS)
- European Conference on Technology Enhanced Learning (ECTEL)
- IEEE International Conference on Advanced Learning Technologies (ICALT)
- IEEE Frontiers in Education Conference (FIE)
- ACM Symposium on Applied Computing (SAC)
- International Conference on Computers in Education (ICCE)
- International Conference on Collaboration and Technology (CRIWG)
- World Wide Web Conference (WWW)
- Brazilian Symposium on Collaborative Systems
- Brazilian Symposium on Computers in Education
- The International Workshop on Collaborative Agents Research & Development (CARE)
- Workshop on Intelligent Support for Learning in Groups
- International Workshop on Social Computing in Digital Education
- WAPLA@EC-TEL: Workshop on Applied and Practical Learning Analytics
- Workshop on Web Science and Technology for Education
- International Workshop on Culturally-Aware Tutoring Systems (CATS)
- IEEE WETICE: Track on Modeling the Collaborative Web Knowledge (Web2Touch)
- International Workshop on Intelligent Support for Learning in Groups
- And many others.

#### PROFESSIONAL MEMBERSHIP

- ACM Senior Member
- IEEE Senior Member
- Member, Artificial Intelligence in Education Society

## INVITED/KEYNOTE PRESENTATIONS *(not exhaustive)*

1. **Keynote Speaker** - International Conference on Intelligent Tutoring System (ITS), 2023. <https://iis-international.org/its2023/>
2. **Guest Speaker** - Harvard China Education Symposium, 2023
3. **Panelist** - ProLEER (Professional Learning network to Advance Early Education Reform) annual meeting at Harvard University, 2023.
4. **Invited Speaker** - Pratt Institute, 2023. [https://talks.pratt.edu/media/t/1\\_xupezb73](https://talks.pratt.edu/media/t/1_xupezb73)  
<https://www.pratt.edu/resources/statement-on-artificial-intelligence/>
5. **Invited Speaker** - Panel: Artificial Intelligence in Education for Underserved Communities, Empowering Learners in the Age of AI (ELAI Global), 2023. [https://www.youtube.com/watch?v=4No6d211I\\_E](https://www.youtube.com/watch?v=4No6d211I_E)
6. **Invited Speaker** - Pontifical Catholic University of Peru (PUC-Peru), 2023. <https://departamento-educacion.pucp.edu.pe/noticias/seiji-isotani-visitara-la-pucp>
7. **Invited Speaker** - Annual Meeting of the Brazilian National Network on Science for Education (Encontro anual da Rede CpE), 2023. <https://www.encontrocp.com/programa>
8. **Keynote Speaker** - Online Education Dialogue - “Navigating AI-Driven Digital Transformation in Higher education”, Tsinghua University, 2023.
9. **Invited Speaker** - Harvard Graduate School of Education Doctoral Colloquium, 2022.
10. **Invited Speaker** and Panel Moderator: AI for Education in Brazil - Global Online Conference on Empowering Learners in AI, 2021. <https://www.empoweringlearners.ai/>
11. **Invited Speaker** - Winter School on Learning Sciences, Brazilian Chapter - International Society of the Learning Sciences, 2021. <https://www.cienciasdaaprendizagem.org/escoladeinverno>
12. **Invited Speaker and Panel Moderator:** Blended Learning after the Pandemic. Brazilian Congress on Computers in Education. 2021.
13. **Invited Speaker:** State of the Art of Gamification in Education - Federal Institute of Rio Grande do Sul. 2021
14. **Invited Speaker** - Secretary of Basic Education, Ministry of education. 2020.
15. **Invited Speaker** – Secretary of Education, Sobral City. 2020.
16. **Keynote Speaker** – Congress of the Brazilian Computer Society, 2020.
17. **Keynote Speaker** - Federal University of Rio Grande do Sul. 2020.
18. **Keynote Speaker** – Information, Innovation and Society Seminar – Federal University of Sao Carlos. 2020
19. **Keynote Speaker** – Science and Technology National Week – Federal Institute of Rio de Janeiro. 2020.
20. **Keynote Speaker** - IEEE 19th International Conference on Advanced Learning Technologies. 2019.
21. **Speaker** – UNESCO Mobile Learning Week Symposium, 2019.
22. **Keynote Speaker** - VII Curricular Innovation’s Seminar - UNICAMP. 2019.
23. **Invited Speaker** - Advanced Innovation Center for Future Education at Beijing Normal University. 2018.
24. **Keynote Speaker** - Latin-American Conference on Learning Technologies. 2017.
25. **Invited Speaker** - Pint of Science Brasil. 2016.

26. **Keynote Speaker** – State University of Montes Claros. 2015.
27. **Keynote Speaker** – ABT International Congress on Educational Technology. 2015.
28. **Keynote Speaker** – Center for Innovation and Technology of Piau . 2015.
29. **Invited Speaker** - eMadrid: R&D Network on Educational Technology. 2015.
30. **Invited Speaker** - Research Seminars at Pompeu Fabra University. 2015.
31. **Keynote Speaker** – Brazilian Congress on Computers in Education. 2014.
32. **Invited Speaker** –Week of Computing – University of S o Paulo. 2014.
33. **Keynote Speaker** - 6th Brazilian Workshop on Semantic Web and Education. 2014.
34. **Invited Speaker** – Panel on Computer Science Education – Congress of the Brazilian Computer Society. 2014.
35. **Keynote Speaker** – Federal University of Grande Dourados. 2012.
36. **Invited Speaker** – Mathematics Education Department – UNICAMP. 2011.

## MENTORING & SUPERVISION

### POSTDOCTORAL RESEARCHERS

1. **Leonardo Brand o Marques**, 2012-2014  
Now Assistant Professor at Federal University of Alagoas
2. **Carla Lopes Rodriguez**, 2012 - 2014  
Now Assistant Professor at Federal University of ABC
3. **Rafaela Vilela de Rocha Campos**, 2014 - 2016  
Now Visiting Assistant Professor at Federal University of ABC
4. **Alan Pedro da Silva**, 2017-2018  
Now Associate Professor at Federal University of Alagoas
5. **Leonardo Castro Botega**, 2017-2018  
Now Assistant Professor at UNIVEM
6. **Danielli Ara jo Lima**, 2020 - 2022  
Now Assistant Professor at Federal Institute of Triangulo Mineiro
7. **Ana Carolina Simionato Arakaki**, 2021 - 2022  
Now Assistant Professor at Federal University of Sao Carlos
8. **Bruno Elias Penteado**, 2021 - 2022  
Now Postdoctoral Researcher at Fiocruz (Oswaldo Cruz Foundation)
9. **Armando Maciel Toda**, 2021 -2022  
Now Postdoctoral Researcher at Durham University, UK

### PH.D. STUDENTS

1. **Simone de Sousa Borges**, 2017  
Now Assistant Professor at Federal University of Technology – Paran 
2. **Aparecida Maria Zem Lopes**, 2017  
Now Assistant Professor at FATEC

3. **Fernando Roberto Hebeler Andrade**, 2018  
Now Project Manager at Accurate Software
4. **Geiser Chalco Chalco**, 2018  
Now Assistant Professor at Federal Rural University of the Semi-arid Region
5. **Helena Macedo Reis**, 2019  
Now Assistant Professor at Federal University of Paraná
6. **Rachel Carlos Duque Reis**, 2019  
Now Assistant Professor at Federal University of Paraná
7. **Bruno Elias Penteado**, 2020  
Now Postdoctoral Researcher at Fiocruz (Oswaldo Cruz Foundation)
8. **Armando Maciel Toda**, 2021  
Now Postdoctoral Researcher at Durham University, UK
9. **Paula Toledo Palomino**, 2022  
Now Senior UX Researcher at NEES - Federal University of Alagoas
10. **Wilk Oliveira dos Santos**, 2022  
Now Researcher at Tampere University, Finland
11. **Luiz Rodrigues**, 2022  
Now Lecturer at SENAI-PR
12. **Jário Santos**, 2022  
Now Assistant Professor at the Federal University of Alagoas
13. **Kamila Katayama Lyra** (ongoing)
14. **Wilmax Marreiro Cruz** (ongoing)
15. **Thyago Tenório Martins de Oliveira** (ongoing)
16. **Vinícius Lopes** (ongoing)

## **MASTER STUDENTS**

1. **Danilo Leite Dalmon**, 2012  
Now General Coordinator of Integral Education, Ministry of Education
2. **Endhe Elias Soares**, 2014  
Now Software Development Manager at Conexia Educação
3. **Olavo de Holanda Cavalcanti Neto**, 2014  
Now Software Engineer at Sigma Ratings, Inc.
4. **Helena Macedo Reis**, 2014  
Now Assistant Professor at Federal University of Paraná
5. **Luis Fernando Moro**, 2015  
Now Technology Manager at Concrete Latinoamérica



6. **Laís Zagatti Pedro**, 2016  
Now Senior Software Developer at Kudos
7. **Wilmax Marreiro Cruz**, 2016  
Now Educational Technology Manager at CIEB - Center of Innovation for Brazilian Education
8. **Kamila Takayama Lyra**, 2017  
Now Ph.D. student at University of Sao Paulo
9. **Laíza Ribeiro Silva**, 2020  
Now Ph.D. Student, University of São Paulo
10. **Fernando Henrique Carvalho Silva**, 2020  
Now Ph.D. Student, University of São Paulo
11. **Ana Cláudia Guimarães Santos**, 2023  
Now Ph.D. Student, Tampere University, Finland
12. **Rafael Kenji Nissi** (ongoing, USP)
13. **Andreza Ferreira** (ongoing, USP)
14. **Sofia de Almeida Prado Simanke** (ongoing, USP)
15. **Benjamin Trey** (ongoing, Harvard)