Leonardo Kawakami Pacheco

School of Computing, Institute of Science Tokyo
Tokyo, Japan

email: leonardovpacheco@gmail.com
site: https://www.leonardopacheco.xyz

Born: October 19, 1994

Current Position

11/2024– Institute of Science Tokyo, Japan
Post-doctoral Researcher

Previous Position

05/2023–10/2024 TU Wien, Austria
Project Assistant under supervision of Juan P. Aguilera

Education

2020–2023 PhD in Mathematics at Tohoku University
Thesis: Exploring the difference hierarchies on μ-calculus and arithmetic — from the point of view of Gale–Stewart games
Advisor: Keita Yokoyama

2018–2020 Master in Mathematics at Tohoku University
Thesis: On the weak hierarchy of μ-calculus
Advisor: Kazuyuki Tanaka

2014–2017 Undergraduate in Mathematics at Universidade Federal de Goiás, Brazil

2012–2013 Undergraduate in Computer Science (incomplete) at Universidade Federal de Goiás, Brazil

Complementary Education

2019 IMS Graduate Summer School in Logic at NUS, Singapore
2016 IMS Graduate Summer School in Logic at NUS, Singapore

Awards

2023 Kawai Doctoral Thesis Award from Tohoku University

Teaching

2021 Teaching Assistant — 数学基礎論特論 (Mathematical Logic — Graduate)
2021 Teaching Assistant — 計算機数学 A (Computability A)
2022 Teaching Assistant — 計算機数学 B (Computability B)

Publications

L. Pacheco, W. Li, K. Tanaka, *On one-variable fragments of modal μ-calculus*, Proceedings of CTFM 2019, World Scientific Publications, 17–45, 2022.

L. Pacheco, K. Tanaka, *The alternation hierarchy of the mu-calculus over weakly transitive frames*, Proceedings of WoLLIC 2022 –28th Workshop on Logic, Language, Information and Computation, Lecture Notes in Computer Science, vol 12468, 207–220, 2022. DOI:10.1007/978-3-031-15298-6_13.

L. Pacheco, *Recent Results on Reflection Principles in Second-Order Arithmetic*, RIMS Kôkyûroku No.2228, 73–77, 2023.

L. Pacheco, K. Yokoyama, *Determinacy and reflection principles in second-order arithmetic*, preprint, arXiv:2209.04082.

L. Pacheco, *Game semantics for the constructive μ-calculus*, preprint, arXiv:2308.16697.

J. Aguilera, R. Lubarsky, L. Pacheco, *Higher-Order Feedback Computation*, Proceedings of CiE 2024, Lecture Notes in Computer Science, 14773, 2024. DOI:10.1007/978-3-031-64309-5_24.

L. Pacheco, *Epistemic possibility in Artemov and Protopopescu's intuitionistic epistemic logic*, RIMS Kôkyûroku No.2293, 66–71, 2024.

L. Pacheco, *Collapsing Constructive and Intuitionistic Modal Logics*, preprint, arXiv:2408.16428.

J. Aguilera, L. Pacheco, IGL *without sharps*, ACM Transactions on Computational Logic, Volume 26 (4), 1–14, 2025. DOI: 10.1145/3748649.

L. Pacheco, *The μ-calculus' Alternation Hierarchy is Strict over Non-Trivial Fusion Logics*, Proceedings of FICS 2024, Electronic Proceedings in Theoretical Computer Science 435, 2025, 93–103. DOI:10.4204/EPTCS.435.8.

Talks

2025 *Gödel–Dummett–Gödel–Löb Logic* at 第 60 回 MLG 数理論理学研究集会.

2025 *Intuitionistic Knowledge as a Constructive Diamond* at LLAL@GSIS (IX).

2025 *Epistemic possibility in Artemov and Protopopescu's intuitionistic epistemic logic* at 18th Asian Logic Conference

2025 IGL *via* ω*-rules* at Logic Colloquium 2025.

2025 *On diamonds in constructive modal logic* at Conference on Non-Classical Modal Logics, National Taiwan University.

2025 *Collapsing Constructive and Intuitionistic Modal Logics* at MSJ Spring Meeting 2025.

2025 *Topological Semantics for* IS4 at LLAL@GSIS (VI).

2025 *The* μ*-calculus' Alternation Hierarchy is Strict over Non-Trivial Fusion Logics* at 第 59 回 MLG 数理論理学研究集会.

2024 IGL *without sharps* at 🄴明論シンポジウム 2024.

2024 *Collapsing Constructive and Intuitionistic Modal Logics* at Australasian Association for Logic 2024 Conference.

2024 IGL *without sharps* at Wormshop 2024.

2024 *Higher-order feedback computation* at Computability in Europe 2024.

2024 *Higher-order feedback computation* at Logic Colloquium 2024.

2024 *Higher-order feedback computation* at CCR2024: 17th International Conference on Computability, Complexity and Randomness.

2024 *Higher-order feedback computation* at MSJ Spring Meeting 2024.

2024 *A constructive variation of* GL at MSJ Spring Meeting 2024.

2024 *The* μ*-calculus' Alternation Hierarchy is Strict over Non-Trivial Fusion Logics* at Fixed Points in Computer Science 2024.

2024 *Higher-order feedback computation* at Trends in Proof Theory 2024.

2023 *Epistemic possibility in intuitionistic epistemic logic* at RIMS Workshop: New Frontiers of Proof and Computation.

2023 *Connecting reflection and beta-models in second-order arithmetic* at Conference on Techniques from Logic in Mathematics.

2023 *Game Semantics for the Constructive μ-calculus* at 15th Latin American Workshop on New Methods of Reasoning.

2023 *Towards a characterization of the μ-calculus' collapse to modal logic* at Australasian Association for Logic 2023 Conference.

2023 *The reverse mathematics of ω-automata* at 若手による数理論理学研究集会.

2023 *The μ-calculus' collapse on variations of* S5 at Logic Colloquium 2023.

2023 *Fixed-points in epistemic logic* at MSJ Spring Meeting 2023.

2022 *The μ-calculus collapses to modal logic over frames of* lS5 at Proof Theory Symposium 2022.

2022 *The alternation hierarchy of the μ-calculus over weakly transitive frames* at 28th Workshop on Logic, Language, Information and Computation.

2022 *Determinacy and reflection principles in second-order arithmetic* at Workshop on Reverse Mathematics and its Philosophy, joint presentation with Keita Yokoyama.

2022 *Determinacy and reflection principles in second-order arithmetic* at The second Japan-Russia workshop on effective descriptive set theory, computable analysis and automata.

2022 *On the degrees of ignorance: via epistemic logic and μ-Calculus* at SOCREAL 2022.

2021 *Sequences of β_k-models and reflection in second-order arithmetic* at Theory and Applications of Proof and Computation — RIMS 共同研究（公開系）.

2021 *On the μ-calculus between* S4 *and* S5 at 1° Enc(ue-o)ntro de Logica Brasil-Col(o-ô)mbia.

2021 *Modal semantics for epistemic logic* at 数学基礎論若手の会 2021.

2020 *μ-calculus and Wadge Degrees* at Proof Theory Workshop 2020.

Last updated: December 18, 2025

Access at https://www.leonardopacheco.xyz/cv.pdf