# Java Darleen Villano

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## Academic positions

**University of Toronto** *Postdoctoral Fellow* *2025-2026*

**University of Connecticut** *Graduate Student* *2019-2025*

## Education

**University of Connecticut** *Ph.D. Mathematics* *2019-2025*

- **Advisers:** Reed Solomon and Damir D. Dzhafarov
- **Dissertation Title:** Computable Categoricity, and Topology in Reverse Mathematics

**University of California, Berkeley** *B.A. Mathematics with Logic Minor* *2015-2019*

## Research interests

Computability theory, computable structure theory, reverse mathematics, Weihrauch complexity, and algorithmic randomness.

## Publications

**Normality, relativization, and randomness** June 2025

Calvert, W., Gruner, E., Mayordomo, E., Turetsky, D., Villano, J.D.

*Theory of Computing Systems*

**Computable categoricity relative to a c.e. degree** May 2025

Villano, J.D.

*Notre Dame Journal of Formal Logic*, to appear.

**The Ginsburg–Sands theorem and computability theory** May 2024

Benham, H., DeLapo, A., Dzhafarov, D., Solomon, R., Villano, J.D.

*Advances in Mathematics*

## Preprints

**Extensions of categoricity relative to a degree** May 2025

Villano, J.D.

arXiv:2505.15706

## Teaching experience

**Primary Instructor** *Storrs, CT*
*University of Connecticut* *2023-2024*

- **Fall 2024:** Math 1071Q (Calculus for Business and Economics), 2 sections
- **Spring 2024:** Math 1071Q (Calculus for Business and Economics), 1 section
- **Fall 2023:** Math 1071Q (Calculus for Business and Economics), 2 sections
- **Spring 2023:** Math 1071Q (Calculus for Business and Economics), 2 sections

**Teacher Assistant** *Storrs, CT*
*University of Connecticut* *2019-2022, 2025*

- **Spring 2025:** Math 2110Q (Multivariable Calculus), 3 sections
- **Fall 2022:** Math 1132Q (Calculus II), 2 sections
- **Spring 2022:** Math 1132Q (Calculus II), 2 sections

- **Fall 2021:** Math 1131Q (Calculus I), 2 sections
- **Spring 2021:** Math 1132Q (Calculus II), 2 sections
- **Fall 2020:** Math 1132Q (Calculus II), 2 sections
- **Spring 2020:** Math 1132Q (Calculus II), 2 sections
- **Fall 2019:** Math 1131Q (Calculus I), 2 sections

## Conference invitations

**Workshop "Reverse Mathematics: New Paradigms"** — *Vienna, Austria*
*Erwin Schrödinger International Institute for Mathematics and Physics* — *Summer 2025*
*Upcoming on August 4-8*

**Summer School "Reverse Mathematics: New Paradigms"** — *Vienna, Austria*
*Erwin Schrödinger International Institute for Mathematics and Physics* — *Summer 2025*

**Logicón 2025** — *México City, México*
*Facultad de Ciencias UNAM* — *Spring 2025*
**Presentation title:** Computable categoricity relative to a degree (online talk)

**ASL North American Annual Meeting** — *Las Cruces, NM*
*New Mexico State University* — *Spring 2025*
**Presentation title:** Computable categoricity relative to a generic degree

**Dagstuhl Seminar – Weihrauch Complexity: Structuring the Realm of Non-Computability** — *Wadern, Germany*
*Schloss Dagstuhl* — *Spring 2025*

**South Eastern Logic Symposium** — *Gainesville, FL*
*University of Florida* — *Spring 2025*
**Presentation title:** Computable categoricity relative to a degree

**Graduate Research Forum** — *Storrs, CT*
*University of Connecticut* — *Spring 2025*
**Presentation title:** Relativizing computable categoricity

**The New England Recursion and Definability Seminar** — *Hanover, NH*
*Dartmouth College* — *Fall 2024*
**Presentation title:** Computable categoricity relative to a c.e. degree

**Computable Structure Theory and Interactions** — *Vienna, Austria*
*Technische Universität Wien* — *Summer 2024*
**Presentation title:** Computable categoricity relative to a degree

**Joint Mathematics Meeting – AMS Special Session on Computable Mathematics: A Session Dedicated to Martin D. Davis** — *San Francisco, CA*
*Spring 2024*
**Presentation title:** Computable categoricity relative to a c.e. degree

**A Convergence of Computable Structure Theory, Analysis, and Randomness** — *Banff, Alberta, Canada*
*Banff International Research Station* — *Spring 2023*

**AMS New England Graduate Student Conference** — *Providence, RI*
*Brown University* — *Spring 2022*
**Presentation title:** Priority arguments

## Contributed presentations

**ASL North American Annual Meeting** — *Ames, IA*
*Iowa State University* — *Spring 2024*
**Presentation title:** Computable categoricity relative to a c.e. degree

**AMS New England Graduate Student Conference** — *Providence, RI*
*Brown University* — *Spring 2024*

**Presentation titles:** Topology in the Reverse Math Zoo; Computable categoricity relative to a c.e. degree

**17th International Conference on Computability, Complexity, and Randomness** — *Nagoya, Japan, Spring 2024*
*Nagoya University*
**Presentation title:** Computable categoricity relative to a c.e. degree

## Conferences and workshops attended

**CBMS Conference – Algorithmic Fractal Dimensions** — *Des Moines, IA, Spring 2024*
*Drake University*

**Computability and Combinatorics Summer School and Conference** — *Hartford, CT, Spring 2023*
*UConn Hartford*

**ASL Winter Meeting at the Joint Mathematics Meeting** — *Boston, MA, Spring 2023*

**IMS Graduate Summer School in Logic** — *Singapore, Summer 2022*
*National University of Singapore*

## Seminar presentations

**SIGMA Seminar** — *Storrs, CT, Spring 2025*
*University of Connecticut*
**Presentation title:** The Scott Isomorphism Theorem

**Online Logic Seminar** — *Online, Fall 2024*
*Southern Illinois University*
**Presentation title:** Computable categoricity relative to a degree

**SIGMA Seminar** — *Storrs, CT, Spring 2024*
*University of Connecticut*
**Presentation title:** The Ginsburg–Sands theorem and computability theory

**SIGMA Seminar** — *Storrs, CT, Spring 2024*
*University of Connecticut*
**Presentation title:** Normality and Randomness

**SIGMA Seminar** — *Storrs, CT, Fall 2023*
*University of Connecticut*
**Presentation title:** Randomness and Hausdorff dimension

**Connecticut Logic Seminar** — *Storrs, CT, Fall 2023*
*University of Connecticut*
**Presentation title:** Computable categoricity relative to a c.e. degree

**SIGMA Seminar** — *Storrs, CT, Fall 2022*
*University of Connecticut*
**Presentation title:** When does the existence of an isomorphism imply the existence of a computable isomorphism?

## Grants and funding

**Summer Doctoral Dissertation Fellowship** — *Summer 2024*
*$2,000 USD*

**Predoctoral Fellowship**
*$7,805 USD* — *Spring 2024*

## Outreach

**President of the Association of Women in Mathematics** — *Storrs, CT, 2022-2024*
*University of Connecticut*

**Speaker at the Mathematics Continued Conference** *Storrs, CT*
*University of Connecticut* *Fall 2022*
The Mathematics Continued Conference seeks to give undergraduate students interested in math an opportunity to learn about graduate school and current research done by graduate students and faculty.

**Course Tutor for SSS Math Program** *Storrs, CT*
*University of Connecticut* *Summer 2020*
Student Support Services (SSS) is a federally funded program at UConn which serves incoming students who are first-generation to college and/or come from communities underserved in higher education.

## Languages

**English** *Second language learned, learned in 2003*
*Advanced proficiency in reading, writing, and speaking*

**Tagalog** *Native language*
*Intermediate proficiency in reading, writing, and speaking*