

Java Darleen Villano

Curriculum vitae

University of Connecticut, Storrs
Department of Mathematics
Storrs, CT 06269
☎ +1 (860) 486 8071
✉ javavill@uconn.edu
📄 <https://javavillano.github.io/>

Education

- 2019–present **Ph.D. in Mathematics**, *University of Connecticut*, Storrs, CT.
Advisors: David Reed Solomon and Damir D. Dzhafarov
- 2015–2019 **B.A. Mathematics with Logic Minor**, *University of California*, Berkeley.

Publications and Preprints

- 2022 **A tree of strategies proof of a result about relativized computable categoricity**, in preparation.
We give a proof using a tree of strategies for the main result in Downey–Harrison–Trainor–Melnikov, 2021.

Teaching Experience

- 2019–present **Teacher Assistant**, *University of Connecticut*, Storrs, CT.
- **Spring 2022**: Math 1132 (Calculus II)
 - **Fall 2021**: Math 1131 (Calculus I)
 - **Spring 2021**: Math 1132 (Calculus II)
 - **Fall 2020**: Math 1132 (Calculus II)
 - **Spring 2020**: Math 1132 (Calculus II)
 - **Fall 2019**: Math 1131 (Calculus II)
- Summer 2020 **Course Tutor for SSS Math Program**, *University of Connecticut*, Storrs, CT.

Presentations

- Fall 2022 **When does the existence of an isomorphism imply the existence of a computable isomorphism?**, *SIGMA Seminar*, University of Connecticut, Storrs, CT.
When we say that two structures are isomorphic, we are stating that an isomorphism exists. But how hard is it to find such an isomorphism? The notion of *computable categoricity* from computable structure theory helps answer that question if we consider algorithmically presented structures, and it can be extended to relativized versions if we are allowed to use other structures as extra information for computations. In this talk, I will briefly talk about some classical results regarding computable categoricity and a newer relativized notion for computable categoricity. I will then present on some of my current work for the latter.

Spring 2022 **Priority Arguments**, *AMS New England Graduate Student Conference*, Brown University, Providence, RI.

Priority arguments have been a powerful tool since their introduction in providing an answer to Post's problem in several areas in mathematical logic, such computability theory and model theory. We give a brief introduction to them and their different versions, and then cover some classical constructions. Afterwards, we will shift to their applications in computable structure theory in constructing certain examples in the study of the notion of relative computable categoricity.

Spring 2019 **Instances of Incompleteness**, *Mathematics Directed Reading Program*, University of California, Berkeley.

Fall 2018 **From Theorems to Axioms: An Introduction to Reverse Mathematics**, *Mathematics Directed Reading Program*, University of California, Berkeley.

Fall 2018 **What is reverse mathematics?**, *Mathematics Undergraduate Student Association's Math Mondays*, University of California, Berkeley.

Spring 2018 **An interpretation of classical arithmetic in constructive arithmetic**, *Mathematics Directed Reading Program*, University of California, Berkeley.

Outreach

2022-2023 **President of the UCONN Chapter of the Association of Women in Mathematics**, *University of Connecticut*, Storrs, CT.