

Mei Rose Connor

Wir müssen wissen, wir werden wissen. —David Hilbert

Education

2025 **Certificate**, *Carnegie Mellon University*, Virtual
TechBridge Coding Bootcamp

2018–2022 **B.Sc.**, *Stony Brook University*, Stony Brook, New York, 3.69/4.00
Mathematics and Linguistics majors

Work Experience

Summer 2025 **Junior Faculty**, *Hampshire College Summer Studies in Mathematics*, Amherst, Massachusetts

- Co-taught 3-week workshop in Abstract Algebra, Discrete Mathematics, and Set Theory for high school students
- Organized and taught a 7-day mini course for high school students in a branch of Formal Logic called Modal Logic
- Graded and provided written and actionable feedback to students on nightly Problem Sets
- Brainstormed and carried out inquiry-based tasks in the classroom to enhance student understanding

Spring 2022 **Department Intern**, *Dept. of Linguistics, Stony Brook University*, Stony Brook, New York

- Read all lecture notes for Mathematical Methods for Linguistics, including new ones
- Provided detailed feedback on the lecture notes; the feedback should discuss content as well as presentation
- Wrote up detailed solutions (including discussion of incorrect solutions) for hand-crafted exercises in the lecture notes
- Tested a procedural generator for exercises with solutions

Summer 2021 **Academic Affiliate**, *Institute for Computational and Experimental Research Mathematics (ICERM)*, *Brown University*, Providence, Rhode Island

- Conducted research at ICERM offices for 8 weeks on periodic trajectories of polygonal billiards dynamics
- Worked with undergraduates, TAs, and faculty mentors to prove results making connections between existing theorems and approaches
- Used SageMath (a package for Python) to test hypotheses and run simulations

Spring 2021 **Lecturer's Assistant**, *Dept. of Mathematics, Stony Brook University*, Stony Brook, New York

- Responded promptly to students' questions in virtual calculus class
- Participated in classroom management

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- Winter 2020 **Undergraduate Teaching Assistant**, *Dept. of Philosophy, Stony Brook University*, Stony Brook, New York
- 2019–2022 **Student Software Coder**, *Teaching and Learning Lab, Center for Excellence in Learning and Teaching*, Stony Brook, New York
- Collaborated with faculty of Biology, Biomedical Engineering, and Philosophy to produce unique and specialized educational software
 - Designed and implemented interactive theorem prover to improve upon existing programs (Logic 2010, Logic 2000) to teach Łukasiewiczian propositional logic
 - Improved upon the Virtual Reality game *Tarski's Truth Machine*, making it accessible from desktop and a wide range of VR devices
 - Integrated the skills (graphics, video editing) of other members of the lab to improve user interfaces of software tools
- 2017–2018 **Lead Conference Organizer**, *Sonya Kovalevskaya Day of Math for Girls*, Ambler, Pennsylvania

Conferences

- Summer 2024 **Mei Rose Connor**, *Developments in eight-valued lattice logic inspired by the seven-valued logic of the Saptabhangi*, Association for Symbolic Logic North American Meeting, Ames, Iowa
- Presented a contributed paper on developments in my 8-valued system of logic, which I have named SyadLogic++
 - Conference abstract forthcoming in the *Bulletin of Symbolic Logic*
- Summer 2022 **Mei Rose Connor supervised by Paul St. Denis**, *(Drag and) Drop It Like It's Hot: Comparison of Educational Software for Teaching Natural Deduction and Axiomatic Derivation*, MathFest 2022, Philadelphia, Pennsylvania
- Presented a poster highlighting a product, DragLogic, developed in the Student Software Coder position
 - Compared and contrasted features and interface of DragLogic with competing products including Logic 2010, \exists Logic, and QED.
- Winter 2022 **Mei Rose Connor, P. Michael Kielstra, Zachary Steinberg, Chenyang Sun**, *Hyperbolic Staircases: Periodic Paths on $2g + 1$ -gons*, Joint Mathematics Meetings, Seattle, Washington
- Presented poster on work done at ICERM with 3 undergraduate collaborators
- Spring 2020 **Mei Rose Connor**, *JainaSyadLogic*, Gathering 4 Gardner 14, Atlanta, Georgia: Cancelled due to COVID
- Invited to give a 6-minute lecture on work in seven-valued logic
 - Prepared a unique giveaway for all conference participants related to work in logic and teaching logic
- Fall 2019 **Mei Rose Connor**, *Opening Statement*, Heidelberg Laureate Forum, Heidelberg, Germany
- Produced a 1-minute long Opening Statement shown to all participants and laureates at Opening Ceremonies
 - Engaged daily with mathematics and computer science laureates as well as young researchers from around the world
 - Attended professional development Q&A led by Fields medallist Efim Zelmanov

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Other Talks and Activities

- Fall 2024 **Directed Reading Program Mentor**, *University of Wisconsin–Madison*, Hybrid between University of Wisconsin–Madison, University of Amsterdam, and Virtual
- Planned 10 weeks of Modal Logic content for three undergraduates of various levels in Formal Logic
 - Organized one meeting every week to discuss textbook *Modal Logic for Open Minds* by J. van Benthem and my own notes on the topics
 - Arranged and chaired a 2-hour long virtual roundtable discussion between students and J. van Benthem of University of Amsterdam
 - Coached students on 45-minute presentation summarizing work done in the semester to other undergraduates
- Spring 2024 **Girls Math Night Mentor**, *University of Wisconsin–Madison*, Madison, Wisconsin
- Prepared a semester-long set of notes in Propositional Logic for the level of an advanced high school student
 - Met with one high school student one time per week and discussed material from notes prepared
 - Github repository containing notes available upon request
- Fall 2023 **When ‘And’ is Too Much and ‘Or’ is Not Enough**, *University of Wisconsin–Madison Graduate Logic Seminar*, University of Wisconsin Madison
- Discussed work-in-progress on development of 8-valued logic
 - Made comparisons to my previous work on the JainaSyadLogic system of 7-valued logic
- Winter 2023 **Worlds Beyond Worlds: An Introduction to the Logic of Possibilities**, *Stony Brook University Math Club*, Stony Brook University
- Discussed Modal Logic and Kripke Semantics of Kripke models
 - Demonstrated the usefulness of various interpretations of the box and diamond operators
 - Led a question-and-answer session about Modal Logic, its applications to philosophy, and its use in mathematics
- Spring 2021–
Spring 2022 **President of Stony Brook University Math Club**, *Stony Brook University*, Stony Brook, New York
- Planned and organized events ranging from faculty and student lectures to statistics-themed craft night
 - Held meeting of executive board every week during which previous week’s and future events are discussed
 - Designed posters and mailings sent to a 400+ person mailing list to raise awareness and attendance at events
- Spring 2021 **Math With Words: An Introduction to Formal Semantics**, *Stony Brook University Math Club*, Virtual
- Introduced the idea of analyzing the meaning of sentences based on the meaning of constituent parts (compositionality)
 - Stepped through the process of deriving truth conditions for a sentence from lexical, phrasal, and substitution rules applied to it
 - Part of a series of Quarantined Undergraduate End-of-Semester Talks (QUEST) with various speakers (Spring Semester series)
 - Presented in under 20 minutes, as is the constraint for QUEST

- Winter 2020 **Bombelli and the History of Complex Numbers**, *Stony Brook University Math Club*, Virtual
- Discussed the history of complex numbers, building from the ideas of Diophantos and Mahavira to the problem of the solutions of cubics in the XVI century
 - Part of QUEST (Fall Semester series) and presented in under 20 minutes
- Spring 2020 **From True and False to JSL: An Adventure in Logic**, *Stony Brook University Math Club*, Virtual
- Introduced the ideas of the propositional logic connectives, their syntax, and their semantics in terms of truth tables
 - Discussed modal logic operators, \Box and \Diamond as well as modal axioms
 - Showed history, motivation, and syntax of JainaSyadLogic, the presenter's own 7-valued modal logic system

Languages

English Native

Latin Intermediate

Achieved a perfect score on the National Latin Exams 2014

German Novice

Computer skills

Proficient \LaTeX 2 ϵ , Desmos Graphing Calculator, LEGO Mindstorms EV3, JavaScript, HTML/CSS, Python 3, Google CoLab

Familiar with Maple, Sage/CoCalc, Mathematica, MongoDB, React

Publications

Papers

- [1] Mei Rose Connor, Diana Davis, Paige Helms, Samuel Lelièvre, Michael Kielstra, Zachary Steinberg, and Chenyang Sun. Hyperbolic staircases: Periodic paths on $2g + 1$ -gons. <https://arxiv.org/abs/2111.13971>, 2021.