Daniel Barter

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- citizenship: Australia

Education

- PhD, Pure Mathematics, University of Michigan, 2012 - 2017. Specialized in category theory and representation theory. Thesis: Some Remarks about the Interaction between Quantum Algebra and Representation Stability.
- B.Sc with First Class Honours and University Medal, Pure Mathematics, University of Sydney, 2008-2011.

Employment

- University of Michigan. 2012-2016. Graduate student instructor for calculus 1, 2 and 3. Taught classes with 20-30 students, three times a week. Held office hours. Helped students use Mathematica. Graded homework/exams.
- University of Sydney. 2011-2012. Tutor for calculus 1 and 2. Supervised problem sessions and graded homework/exams.

Independent Study

- Pure Mathematics: **differential geometry, representation theory and category theory**: I am particularly interested in the interaction between these subjects and physics. Recently, I have been thinking about the relationship between tensor categories, classical representation theory and topological quantum computing.
- Computer Science: **functional programming, assembly, UNIX, machine learning**: I have read SICP and solved all of the exercises. I wrote a simulator for Knuth's MIX machine to learn how computers execute programs. I have been using GNU/Linux as my main operating system since 2012 and am acquainted with the standard tools and how to combine them. I understand the basics of machine learning.

Preprints

- Noetherianity and rooted trees. arXiv:1509.04228
- A remark about 6j symbols and young semi-normal form. arXiv:1610.05248
- Computing the minimal model for the quantum symmetric algebra. arXiv:1610.05204
- Eigenvalues of rotations and braids in spherical fusion categories. Joint with Corey Jones and Henry Tucker. arXiv:1611.00071
- Deligne categories and representations of the infinite symmetric group. Joint with Inna Entova-Aizenbud and Thorsten Heidersdorf. arXiv:1706.03645

Invited Talks

- Michigan theoretical computer science seminar, *Tensor rank and stability in representation theory*
- Berkeley combinatorics seminar, *Combinatorial categories, configuration spaces and tensorial species*