Robert Y. Lewis

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Positions

2018 – 2020	**Vrije Universiteit**, Amsterdam, The Netherlands Postdoc, Theoretical Computer Science Matryoshka project
2012 – 2018	**Carnegie Mellon University**, Pittsburgh, PA, USA PhD, Pure and Applied Logic, 2018 MS, Mathematics, 2015 MS, Logic, Computation, and Methodology, 2014 Supervisor: Jeremy Avigad
Summer 2016	**Wolfram Research**, Champaign, IL, USA Intern, Mathematica Algorithms R&D
Summer 2015	**University of Newcastle**, NSW, Australia Visiting student, CARMA Priority Research Centre
2010 – 2012	**St. Agnes Academy**, Houston, TX, USA Secondary School Teacher 10^{th} grade geometry, 11^{th} and 12^{th} grade pre-calculus, 12^{th} grade AP Calculus AB
2006 – 2010	**Rice University**, Houston, TX, USA BA, Mathematics and Philosophy

Publications

Jeremy Avigad, Robert Y. Lewis, and Floris van Doorn. *Logic and Proof.* An online interactive/static textbook using the Lean theorem prover. Under development.

Robert Y. Lewis. *An extensible ad hoc interface between Lean and Mathematica.* In Dubois, C. and Paleo, B. W. eds., proceedings of Proof eXchange for Theorem Proving 2017 (EPTCS).

Jeremy Avigad, Robert Y. Lewis, and Cody Roux. *A heuristic prover for real inequalities.* (Journal version.) Journal of Automated Reasoning 56(3), 2016.

Jeremy Avigad, Robert Y. Lewis, and Cody Roux. *A heuristic prover for real inequalities.* In Klein, G. and Gamboa, R., eds., proceedings of Interactive Theorem Proving 2014 (Springer LNCS).

Leobardo Rosales, Robert Y. Lewis, et. al. *Energy-minimizing unit vector fields.* Involve 3(4), 2010.

Presentations

The Lean theorem prover, for mathematicians.

- Department of Mathematics foundations seminar, Western University, London, ON, Canada. 12/2017.

An extensible ad hoc interface between Lean and Mathematica.

- Proof eXchange for Theorem Proving workshop, Brasília, Brazil. 09/2017.
- Wolfram Technology Conference, Champaign, IL. 10/2016.

Automation and computation in the Lean theorem prover.

- Hammers for Type Theory workshop, IJCAR, Coimbra, Portugal. 07/2016.
- AITP 2016: Artificial Intelligence in Theorem Proving, Obergurgl, Austria. 04/2016.
- TU München Logic and Verification Seminar, Munich, Germany. 03/2016.

Algebra and analysis in the Lean theorem prover.

- MAP 2016: Effective Analysis, Marseille, France. 01/2016.

Dependent types and the algebraic hierarchy.

- Workshop on Mathematics and Computation, Newcastle, NSW, Australia. 06/2015.

A heuristic prover for real inequalities.

- ITP 2014: Interactive Theorem Proving, Vienna, Austria. 07/2014.
- 6th Podlasie Conference on Mathematics, Bialystok, Poland. 07/2014.
- CMU Graduate Research Sharing Forum, Pittsburgh, PA. 12/2013.

Computers in mathematics: automated and interactive proofs.

- CMU Summer School in Logic and Formal Epistemology. 06/2014.

Some unintuitive consequences of the Axiom of Choice.

- Rice University Undergraduate Mathematics Colloquium. 09/2009.

Energy-minimizing vector fields of unit length.

- Rice University VIGRE Summer Seminar. 07/2009.

Teaching

All classes at Carnegie Mellon University, unless otherwise indicated.

Fall 2016	80-211, *Logic and Mathematical Inquiry* (instructor)
Spring 2015	80-110, *Nature of Mathematical Reasoning* (instructor)
Fall 2014	21-257, *Models and Methods of Optimization* (teaching assistant)
Summer 2014	80-110, *Nature of Mathematical Reasoning* (instructor)
Spring 2014	80-311, *Undecidability and Incompleteness* (grader)
Fall 2013	80-610, *Formal Logic* (grader and guest lecturer)
2010 – 2012	*Geometry, Pre-calculus, AP Calculus AB* (St. Agnes Academy, instructor)
2007 – 2010	MATH 221/222/354, *Honors Calculus III/IV*, *Honors Linear Algebra* (Rice, grader)

Service

2015, 2016	CMU Dept. Philosophy Graduate Admissions Committee
2015	CMU Dept. Philosophy 30th Anniversary Conference Planning Committee
2013 – 2017	Organizer, CMU Philosophy Dept. Graduate Research Sharing Forum
2011 – 2012	Coach and Sponsor, St. Agnes Academy Engineering/Robotics Team
2008 – 2010	Coordinator and tutor, SRC Society of Academic Fellows, Rice University

Awards, Grants, and Honors

2017	Laboratory of Symbolic and Educational Computation research fellowship
2017	Future Faculty, Eberly Center for Teaching Excellence & Educational Innovation
2015 – 2016	William S. Dietrich II Presidential PhD Fellowship
2014	Honorable Mention, NSF Graduate Research Fellowship Program

Last updated: January 23, 2018