Curriculum Vitae
Joseph R. Mileti

Current Address

Department of Mathematics and Statistics
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Research Interests

Interactions of mathematical logic (computability theory, set theory, model theory) with algebra and combinatorics.

Academic Degrees

Ph.D. in Mathematics, University of Illinois at Urbana-Champaign (UIUC), 2004.
Thesis Advisor: Carl G. Jockusch, Jr.

B.S. in Computer Science and Discrete Mathematics/Logic with honors,
Carnegie Mellon University, 1999.

Employment

Associate Professor, Grinnell College, 2015 – Present.
Assistant Professor, Grinnell College, 2009 – 2015.
John Wesley Young Research Instructor, Dartmouth College, 2007 – 2009.
L.E. Dickson Instructor of Mathematics, University of Chicago, 2004 – 2007.

Research Honors and Awards

2004 Sacks Prize of the Association of Symbolic Logic (best doctoral dissertation in mathematical logic worldwide).

Books

Modern Mathematical Logic, to be published by Cambridge University Press, September 2022.

Research Papers

The complexity of primes in computable UFDs (with D. Dzhafarov), *Notre Dame Journal of Formal Logic*, 59 (2018), no. 2, 139-156.

Irreducibles and primes in computable integral domains (with L. Evron and E. Ratliff-Crain), in *Computability and Complexity* (2017), edited by Adam Day, Michael Fellows, Noam Greenberg, Bakhadyr Khoussainov, Alexander Melnikov, and Frances Rosamond, Lecture Notes in Computer Science, Springer.

On uniform relationships between combinatorial problems (with F. Dorais, D. Dzhafarov, J. Hirst, and P. Shafer), *Transactions of the American Math Society*, 368 (2016), 1321–1359.

Reverse mathematics and Ramsey's property for trees (with J. Corduan and M. Groszek), *Journal of Symbolic Logic*, 75 (2010), no. 3, 945–954.

The strength of the rainbow Ramsey theorem (with B. Csima), *Journal of Symbolic Logic*, 74 (2009), no. 4, 1310–1324.

The canonical Ramsey theorem and computability theory, *Transactions of the American Math Society*, 360 (2008), 1309–1340.

Ideals in computable rings (with R. Downey and S. Lempp), *Journal of Algebra*, 314 (2007), no. 2, 872–887.

Subspaces of computable vector spaces (with R. Downey, D. Hirschfeldt, A. Kach, S. Lempp, and A. Montalbán), *Journal of Algebra*, 314 (2007), no. 2, 888–894.

Partition theorems and computability theory, *Bulletin of Symbolic Logic*, vol. 11 #3 (2005), 411–427.

Partition theorems and computability theory, Ph.D. dissertation, University of Illinois at Urbana-Champaign, 2004.

Cwatset isomorphism and its consequences (with C. Girod, M. Lepinski, and J. Paulhus), *Rose-Hulman Mathematical Sciences Technical Report Series 1 (2000)*, Research performed as part of an NSF REU program at Rose-Hulman Institute of Technology.

Colloquium Talks

Universidad de Chile, November 2017.
Iowa State University, November 2013.
Western Illinois University, February 2013.
University of California, Berkeley, Logic Colloquium, November 2012.
Bryn Mawr College, March 2011.
Villanova University, March 2011.
Wellesley College, April 2009.
Kansas State University, September 2008.
University of Waterloo, March 2006.
Carnegie Mellon University, October 2005.

Invited Talks

Iowa Colloquium on Information, Complexity, and Logic (ICICL), Drake University, October 2017.
Midwest Computability Seminar, October 2016.
ASL Annual Meeting, University of Connecticut, May 2016.
Computability, Complexity, and Randomness Seminar, Buenos Aires, Argentina, April 2013.
University of California, Berkeley, Recursion Theory Seminar, October 2012.
University of California, Berkeley, Reverse Mathematics Seminar, September 2012.
Notre Dame Logic Seminar, November 2009.
Carleton College Mathematics Seminar, February 2009.
Fairfield University Mathematics Seminar, February 2009.
Grinnell College Mathematics Seminar, February 2009.
Williams College Mathematics Seminar, January 2009.
ASL Annual Meeting, Irvine, March 2008.
MIT Logic Seminar, March 2008.
Connecticut Logic Seminar, November 2007.
Notre Dame University Logic Seminar, September 2006.
Cornell University Logic Seminar, April 2006.
AMS Sectional Meeting, Notre Dame, April 2006.
University of Waterloo Logic Seminar, March 2006.
Southern Wisconsin Logic Colloquium (University of Wisconsin, Madison), October 2005.
Computational Prospects of Infinity, National University of Singapore, July 2005.
University of Illinois at Chicago Model Theory Seminar, April 2005.
Joint AMS/MAA/ASL Meeting, Atlanta, January 2005.
AMS Sectional Meeting, Northwestern, October 2004.
Notre Dame Logic Seminar, January 2004.

University of Chicago Logic Seminar, January 2004.

Conference Talks

International Congress of Mathematicians, Seoul, South Korea, August 2014.
ASL Annual Meeting, Boulder, May 2014.
AMS Sectional Meeting, Iowa State University, April 2013.
Joint AMS/MAA/ASL Meeting, New Orleans, January 2007.
Fifth Annual Graduate Student Logic Conference, Notre Dame, May 2004.
Greater Boston Logic Meeting, MIT, May 2003.
Fourth Annual Graduate Student Logic Conference, University of Wisconsin, Madison, April 2003.
Second Annual Graduate Student Logic Conference, UIUC, February 2001.
Joint AMS/MAA Meeting, San Antonio, January 1999 (with C. Girod, M. Lepinski, and J. Paulhus).

Expository Talks

(Not) Computing the Primes, Grinnell Faculty Colloquium, October 2014.
Measuring the Infinite, Dartmouth College Pre-Orientation, September 2008.
Hilbert's Tenth Problem, Dartmouth Undergraduate Math Society, April 2008.
What does Mathematical Logic Have to do with Mathematics?, University of Chicago REU, July 2005.

Workshops

New Challenges in Reverse Mathematics, National University of Singapore, January 2016.
Ramsey Theory in Logic, Combinatorics and Complexity, Bertinoro, Italy, May 2011.
Reverse Mathematics: Foundations and Applications Workshop, University of Chicago, November 2009.
Computability, Reverse Mathematics and Combinatorics, Banff International Research Station, December 2008.
Logic, Combinatorics and Independence Results, Oberwolfach, November 2006.
Computability and Logic Workshop, Heidelberg, Germany, June 2003.

Directed Undergraduate Research Projects

Mentored Advanced Projects, Grinnell College:

- *Colorings of Algebraic Structures*, Jiayi Chen, Jasper Egge, Alicia Ledesma Alonso, and Sanah Suri, Summer 2019.
- *Rainbow Ramsey Theory on the Integers*, Isaac Mielke and Nripesh Pradhan, Summer 2016.
- *Rainbow Ramsey Theory on the Integers*, Henry Ehrhard, David Kraemer, Boyd Monson, and Yifei Zhang, Summer 2015.
- *Computing Primes in Rings*, Leigh Evron and Ethan Ratliff-Crain, Summer 2013.
- *Comparing Random Sequences*, Jonah Ellman, Summer 2011.

Professional Service

Co-organizer: Iowa Colloquium on Information, Complexity, and Logic (ICICL), 2016 – Present.
Co-organizer: Midwest Computability Seminar meeting, October 2016.
Program Committee member for *Computability in Europe 2014*, Budapest, Hungary.
Referee for *Transactions of the American Mathematical Society*, *Journal of Symbolic Logic*, *Computability*, *Proceedings of the American Mathematical Society*, *Theory of Computing*

Systems, *Notre Dame Journal of Formal Logic*, *Computability in Europe 2015*, *Computability in Europe 2014*.

Select Grinnell College Service

Chair of the Mathematics and Statistics Department: 2018 – 2021.
Benefits Committee: 2020 – Present.
Committee on Academic Standing: 2014 – 2017.
Chair of Honesty Subcommittee (of Committee on Academic Standing): 2015 – 2016.
STaLG (Science Teaching and Learning Group) Co-organizer: 2014 – 2016.
Scholarship Selection Committee: 2013 – 2015.

Teaching

Assistant/Associate Professor, Grinnell College:

- Senior Seminar - Mathematical Logic: S16, S22.
- Senior Seminar - Ergodic Theory: S17.
- Computational Algebraic Geometry: S21.
- Field Theory: S11.
- Algebraic Number Theory: S10, S12.
- Foundations of Abstract Algebra: F09, F10, S14, F15, F19, F20.
- Foundations of Analysis: F18.
- Elementary Number Theory: S22.
- Combinatorics and Number Theory: F16, S20.
- Combinatorics and Graph Theory: F16, S21.
- Combinatorics: F11, S12, S14.
- Discrete Structures: S15, S17.
- Linear Algebra: S10, S11, F13, F14, F16, S19, S20.
- Calculus II: F09, S10, F10, S12, S15, S16, F18, F19, F21.
- Calculus I: F11, F21.
- Functions and Differential Calculus: F15.
- First-Year Tutorial: F13.
- Independent Study in Mathematical Logic: F10, F11, S12, F18.
- Independent Study in Computability Theory: F17.
- Guided Reading in Set Theory: F21.

John Wesley Young Research Instructor, Dartmouth College:

- Topics in Mathematical Logic (graduate course): F07.
- Graph Theory: S09.
- Honors Probability: S08.
- Discrete Probability: S09.
- Mathematical Models in the Social Sciences: F07.
- Multivariable Calculus: F08.
- Calculus of Vector-Valued Functions: S08.
- Introduction to Calculus: F08.

L.E. Dickson Instructor, University of Chicago:

- Mathematical Logic 2: W05, W06, W07.
- Mathematical Logic 1: F05, F06.
- Honors Calculus 3: S05.
- Honors Calculus 1: F04.
- Reading Course in Computable and Reverse Mathematics: M05, S06, M06 (Twice with graduate students, once with an undergraduate student).

Teaching Assistant, UIUC, Instructor with full responsibilities:

- Calculus 2: S03.
- Finite Mathematics: M00.
- Introductory Matrix Theory: F99.

Teaching Assistant, Carnegie Mellon University, Recitation Instructor:

- Discrete Mathematics: S99.
- Concepts of Modern Mathematics: F97, F98.
- Calculus 3: S98.
- Calculus 2: S97.
- Calculus 1: F96.