Richard Rast

Contact Information

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Website

http://rodya-mirov.github.io

Education

University of Maryland
Ph.D., Mathematics, May 2016

Thesis: The Complexity of Isomorphism for Some First-Order Theories
Advisor: Michael C. Laskowski

M.A., Mathematics, May 2012

Dickinson College
B.S., Computer Science, May 2009
B.S., Mathematics, May 2009

Industry Experience

Bluefin, LLC (previously Roof Express)

- *Data Scientist*, March 2016 - current
  - Designed and built data-driven prediction systems to determine how long a roof would last.
  - Used a decade of expert data across billions of square feet of roofs across the United States and Canada.
  - Evaluated new technologies, and helped to integrate them into Bluefin's workflow.
- *Developer*, Summer 2010 and Summer 2012
  - 2010: Built the RoofBOSS system, which rearranges capital expenses to smooth out spending between years for large groups of structures.
  - 2012: Made improvements for RoofBOSS, to minimize capital spending increase while smoothing.

Programming Languages

Python – significant professional and hobbyist experience
C# – significant professional and hobbyist experience
Java – significant academic and hobbyist experience
Matlab / Octave – moderate academic experience
R – some professional and academic experience
HTML, CSS, JavaScript – some hobbyist experience
LaTeX – significant professional experience

Open Source Projects

Selected Projects from GitHub – see https://github.com/rodya-mirov

- *Shallow Minds* – A tutorial for artificial neural networks with enough sample code to let the reader experiment on their own. Goes from the absolute basics to the state-of-the-art, aiming for simplicity of exposition without skipping the harder topics. Written in Python and numpy, through a series of Jupyter notebooks.
- *Voxelist* – A basic engine for an infinite 3D procedurally generated world, which can be explored in first person. Written in C# with XNA.
- *Infinite Tile Engine 2D* – Similar to Voxelist, but in 2D and with support for more game-related features. Written in C# with XNA.
- *Frog Defense* – A tower defense game with a twist. Made for a seven-day challenge. Written in C# with XNA.

Academic Experience

University of Maryland

- *Lecturer*, August 2009 through May 2016
  - Designed and administered completed courses, including writing lectures, assignments, and tests.
  - Assisted individual students through tutoring and office hours.
  - Wrote a supplemental textbook for "Introduction to Proof," to fill gaps in the existing text.
- *Teaching Assistant*, August 2009 through May 2016
  - Reinforced the lecture through group "discussion" meetings.
  - Assisted individual students through tutoring and office hours.
- *Graduate Student*, August 2009 through May 2016
  - Learned advanced mathematics through courses and independent research.
  - Produced original research, both independently and with collaborators, including three peer reviewed papers and my dissertation.
  - Gave talks on my research at conferences and seminars throughout the country.
- *Seminar Organizer*
  - Student Logic Seminar, Fall 2012 through Spring 2016
  - RIT on Logic and Number Theory, Fall 2013

Recent Honors and Awards

2016 – James C. Alexander Prize for Graduate Research
2015 – Spotlight on Graduate Research (winning talk)
2015 – Aziz/Osborn Gold Medal in Teaching Excellence
2014 – Mark E. Lachtman Fellowship (dissertation award)
2010 – Aziz/Osborn Gold Medal in Teaching Excellence

Published Research

Peer-Reviewed Publications – see my website or `arXiv.org` for preprints.

- D. Ulrich, C. Laskowski, R. Rast, *A New Notion of Cardinality for Countable First-Order Theories* (submitted).
- R. Rast, *The Borel Complexity of Isomorphism for Theories of Linear Orders,* Archive of Mathematical Logic (to appear).
- R. Rast, D. Sahota, *The Borel Complexity of Isomorphism for O-Minimal Theories,* Journal of Symbolic Logic (to appear).

Research Talks

Invited Talks on my Research – see my website for titles and slides.

- Model Theory Seminar, Rutgers University (April 2016).
- AMS Western Sectional Meeting, University of Utah (April 2016).
- Logic Seminar, Pennsylvania State University (March 2016).
- Model Theory Seminar, City University of New York (March 2016).
- Logic Seminar, University of Notre Dame (December 2015).
- The Second Vaught's Conjecture Conference, University of California at Berkeley (June 2015).
- Model Theory Seminar, City University of New York (November 2014).