

Dylan Peifer

CONTACT INFORMATION	Department of Mathematics 310 Malott Hall Cornell University Ithaca, NY 14853-4201 USA	<i>Phone:</i> 828-767-9411 <i>E-mail:</i> djp282@cornell.edu <i>Website:</i> pi.math.cornell.edu/~djp282 <i>GitHub:</i> www.github.com/dylanpeifer <i>LinkedIn:</i> www.linkedin.com/in/dylanpeifer
BACKGROUND	Ph.D. in mathematics applying reinforcement learning to optimize heuristics in Gröbner basis computation, a key bottleneck in computer algebra systems. Experienced in mathematics, programming, data science, machine learning, and problem solving.	
EDUCATION	Cornell University , Ithaca, NY Ph.D., Mathematics, expected May 2020 M.S., Computer Science, December 2017, GPA 3.94 Carleton College , Northfield, MN B.A., Mathematics, June 2014, GPA 3.94	
WORK	The D. E. Shaw Group , New York City, NY <i>Quantitative Analyst Intern</i> , Options May 2019 – August 2019 Analyzed datasets of options volume. Constructed features, trained machine learning models, and evaluated performance in predicting options volume and trade direction. Cornell University , Ithaca, NY <i>Teaching Assistant</i> , Mathematics Department August 2014 – Present Taught undergraduate multivariable calculus and linear algebra. Developed materials, managed TAs, and performed administrative duties for 600+ student courses.	
SKILLS	<ul style="list-style-type: none">• Programming Languages: C, C++, Python, Scheme• Mathematical Software: GAP, Macaulay2, Mathematica, MATLAB, Singular• Python Packages: Matplotlib, NumPy, Pandas, Scikit-Learn, Seaborn, SciPy, StatsModels, SymPy, TensorFlow	
PUBLICATIONS	<ul style="list-style-type: none">[1] Dylan Peifer. An algorithm for enumerating difference sets. <i>Journal of Software for Algebra and Geometry</i> 9 (2019) 35-41.[2] Omar A. AbuGhneim, Dylan Peifer, and Ken W. Smith. All $(96, 20, 4)$ difference sets and related structures. <i>Bulletin of the Institute of Combinatorics and its Applications</i> 85 (2019), 44-59.[3] Martin Bobb, Stephen Kennedy, Dylan Peifer, and Helen Wong. Roger and Yang's Kauffman bracket arc algebra is finitely generated. <i>J. Knot Theory Ramifications</i> 25:6 (2016).[4] Martin Bobb, Stephen Kennedy, Dylan Peifer, and Helen Wong. Presentations of Roger and Yang's Kauffman bracket arc algebra. <i>Involve, a Journal of Mathematics</i> 9:4 (2016), 689-698.	
PROJECTS	DifSets A refereed package for the open-source computer algebra system GAP that efficiently implements an exhaustive search for difference sets using group theory and dynamic programming. GroebnerWalk A contributed package for the open-source computer algebra system Macaulay2 that implements the standard and generic Gröbner walk algorithm to quickly compute Gröbner bases.	