

landon rabern

CONTACT INFORMATION	497 Mine Road Lebanon, PA 17042	<i>email:</i> landon.rabern@gmail.com <i>math:</i> https://sites.google.com/site/landonrabern <i>code:</i> https://github.com/landon
RESEARCH INTERESTS	Structural and extremal graph theory, particularly graph coloring. The structure of paradox. Meditation. Machine learning/discovery, automated proof writing. Teaching mathematics via games and play.	
EDUCATION	Ph.D., Mathematics. Arizona State University, 2011 - 2013. <ul style="list-style-type: none">• Dissertation: <i>Coloring graphs from almost maximum degree sized palettes</i>• Advisor: Hal Kierstead M.A., Mathematics. University of California, Santa Barbara, 2003 - 2005. B.A., Mathematics. Washington University in St. Louis, 1999 - 2003.	
TEACHING	Franklin & Marshall College Department of Mathematics <i>Adjunct Assistant Professor</i> <ul style="list-style-type: none">• Precalculus• Differential Calculus (5 courses) Arizona State University School of Mathematical and Statistical Sciences <i>Teaching Assistant</i> <ul style="list-style-type: none">• Graph Theory University of California, Santa Barbara Department of Mathematics <i>Teaching Assistant</i> <ul style="list-style-type: none">• Abstract Algebra• Differential Equations & Linear Algebra• Logic and Proofs	2015 - 2011 - 2012 2003 - 2005
INDUSTRY WORK	LBD Data <i>Owner / Software Architect</i> Wall Street On Demand <i>Senior Software Engineer</i> Synaptics <i>Software Engineer</i> Wall Street On Demand <i>Software Engineer</i> L-3 Communications - Applied Technologies Division <i>Scientific Programmer, Security Clearance—Secret</i>	2008 - 2010 - 2011 2009 - 2010 2007 - 2009 2005 - 2007

- [1] L. Rabern. A better lower bound on average degree of 4-list-critical graphs. *Electron. J. Combin.*, Accepted.
- [2] H. Kierstead and L. Rabern. Extracting list colorings from large independent sets. *J. Graph Theory*, Accepted.
- [3] D.W. Cranston and L. Rabern. Edge Lower Bounds for List Critical Graphs, via Discharging. *Combinatorica*, Accepted.
- [4] D.W. Cranston and L. Rabern. Planar graphs have independence ratio at least $3/13$. *Electron. J. Combin.*, Accepted.
- [5] D.W. Cranston and L. Rabern. List-coloring claw-free graphs with $\Delta - 1$ colors. *SIAM J. Discrete Math.*, Accepted.
- [6] D.W. Cranston and L. Rabern. Subcubic edge chromatic critical graphs have many edges. *J. Graph Theory*, Accepted.
- [7] D.W. Cranston and L. Rabern. Painting squares in $\Delta^2 - 1$ shades. *Electron. J. Combin.*, Accepted.
- [8] H. Kierstead and L. Rabern. Improved lower bounds on the number of edges in list critical and online list critical graphs. *J. Combin. Theory Ser. B*, Accepted.
- [9] D.W. Cranston and L. Rabern. The fractional chromatic number of the plane. *Combinatorica*, Accepted.
- [10] D.W. Cranston and L. Rabern. Graphs with $\chi = \Delta$ have big cliques. *SIAM J. Discrete Math.*, Accepted.
- [11] D.W. Cranston and L. Rabern. Brooks' Theorem and Beyond. *J. Graph Theory*, Accepted.
- [12] D.W. Cranston and L. Rabern. A note on coloring vertex-transitive graphs. *Electron. J. Combin.*, **22** (2), 2015.
- [13] D.W. Cranston and L. Rabern. Conjectures equivalent to the Borodin-Kostochka conjecture that appear weaker. *European J. Combinatorics*, Volume 44, Part A, February 2015, Pages 23-42.
- [14] L. Rabern. A game generalizing Hall's theorem. *Discrete Math.*, **320**(6):87-91, 2014.
- [15] L. Rabern. Coloring graphs with dense neighborhoods. *J. Graph Theory*, **76**(4):323-340, 2014.
- [16] L. Rabern. A different short proof of Brooks' theorem. *Discuss. Math. Graph Theory*, **34**(3), 2014.
- [17] L. Rabern. Partitioning and coloring graphs with degree constraints. *Discrete Math.*, **313**(9): 1028-1034, 2013.
- [18] D.W. Cranston and L. Rabern. Coloring claw-free graphs with $\Delta - 1$ colors. *SIAM J. Discrete Math.*, **27**(1):534-549, 2013.
- [19] L. Rabern. Destroying non-complete regular components in graph partitions. *J. Graph Theory*, **72**(2):123-127, 2013.
- [20] A.V. Kostochka, L. Rabern and M. Stiebitz. Graphs with chromatic number close to maximum degree. *Discrete Math.*, **312**(6):1273-1281, 2012.
- [21] L. Rabern. A strengthening of Brooks' Theorem for line graphs. *Electron. J. Combin.*, N145, **18** (1), 2011.

- [22] L. Rabern. Δ -Critical graphs with small high vertex cliques. *J. Combin. Theory Ser. B*, **102** (1):126-130, 2012.
- [23] L. Rabern. On hitting all maximum cliques with an independent set. *J. Graph Theory*, **66**(1): 32-37, 2011.
- [24] L. Rabern. A note on Reed’s conjecture. *SIAM J. Discrete Math.*, **22**(2):820-827, 2008.
- [25] L. Rabern. Applying Groebner basis techniques to group theory. *J. Pure Appl. Algebra*, **210** (1):137-140, 2007.
- [26] L. Rabern. The Borodin-Kostochka conjecture for graphs containing a doubly critical edge. *Electron. J. Combin.*, N22, **14** (1), 2007.
- [27] D. Gernert and L. Rabern. A knowledge-based system for graph theory, demonstrated by partial proofs for graph-colouring problems. *Comm. Math. Comput. Chem.*, **58**, N2 2007.
- [28] L. Rabern. On graph associations. *SIAM J. Discrete Math.*, **20** (2):529–535, 2006.
- [29] L. Rabern. Properties of magic squares of squares. *Rose Hulman Undergraduate J. Math.*, **4**(1), 2003.

PHILOSOPHY
PUBLICATIONS

- [30] L. Rabern, B. Rabern, and M. Macauley. Dangerous reference graphs and semantic paradoxes. *J. Philos. Logic*, **42**(5):727-765, 2013.
- [31] B. Rabern and L. Rabern. A simple solution to the hardest logic puzzle ever. *Analysis*, **68**(2), April 2008.

UNDER REVIEW

- [32] L. Rabern. A better lower bound on average degree of k-list-critical graphs.
- [33] D.W. Cranston and L. Rabern. Planar graphs are $9/2$ -colorable.
- [34] D.W. Cranston and L. Rabern. Short fans and the $5/6$ bound for line graphs..
- [35] D.W. Cranston and L. Rabern. Beyond Degree Choosability.
- [36] D.W. Cranston and L. Rabern. Edge-coloring via fixable subgraphs.

PEER REVIEWS

- Journal of Combinatorial Theory, Series B
- Electronic Journal of Combinatorics
- Journal of Graph Theory
- Discrete Math
- Synthese
- Minds and Machines
- SIAM Journal on Discrete Mathematics

PRESENTATIONS

- *A common generalization of Hall’s theorem and Vizing’s edge-coloring theorem.* Miami University Colloquium, 2015.
- *Extending Alon-Tarsi Orientations.* AMS Special Session on Structural and Extremal Problems, 2014.
- *Improving Brooks’ theorem.* The 26th Clemson Conference on Discrete Mathematics and Algorithms, 2011.
- *An improvement on Brooks’ theorem.* CU-Denver Discrete Math Seminar, 2011.

COMPUTER SKILLS

- Languages: C#, C/C++, JavaScript, Python, Java, Pascal, Scheme, x86 assembly.
- Applications: GAP, Boost Graph Library, L^AT_EX.
- Operating Systems: UNIX/Linux, Windows.