

## landon rabern

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CONTACT INFORMATION	497 Mine Road Lebanon, PA 17042	<i>email:</i> landon.rabern@gmail.com <i>math:</i> <a href="https://sites.google.com/site/landonrabern">https://sites.google.com/site/landonrabern</a> <i>code:</i> <a href="https://github.com/landon">https://github.com/landon</a>
RESEARCH INTERESTS	Structural and extremal graph theory, particularly graph coloring. The structure of paradox. Machine learning/discovery, automated proof writing.	
EDUCATION	<p><b>Ph.D., Mathematics.</b> Arizona State University, 2011 - 2013.</p> <ul style="list-style-type: none"><li>• Dissertation: <i>Coloring graphs from almost maximum degree sized palettes</i></li><li>• Advisor: Hal Kierstead</li></ul> <p><b>M.A., Mathematics.</b> University of California, Santa Barbara, 2003 - 2005.</p> <p><b>B.A., Mathematics.</b> Washington University in St. Louis, 1999 - 2003.</p>	
TEACHING	<p><b>Franklin &amp; Marshall College</b> Department of Mathematics <i>Adjunct Assistant Professor</i></p> <ul style="list-style-type: none"><li>• Precalculus (2 sections)</li><li>• Differential Calculus (7 sections)</li></ul> <p><b>Arizona State University</b> School of Mathematical and Statistical Sciences <i>Teaching Assistant</i></p> <ul style="list-style-type: none"><li>• Graph Theory</li></ul> <p><b>University of California, Santa Barbara</b> Department of Mathematics <i>Teaching Assistant</i></p> <ul style="list-style-type: none"><li>• Abstract Algebra</li><li>• Differential Equations &amp; Linear Algebra</li><li>• Logic and Proofs</li></ul>	<p><b>2015 -</b></p> <p><b>2011 - 2012</b></p> <p><b>2003 - 2005</b></p>
INDUSTRY WORK	<p><b>LBD Data</b> <i>Owner / Software Architect</i></p> <p><b>Wall Street On Demand</b> <i>Senior Software Engineer</i></p> <p><b>Synaptics</b> <i>Software Engineer</i></p> <p><b>Wall Street On Demand</b> <i>Software Engineer</i></p> <p><b>L-3 Communications - Applied Technologies Division</b> <i>Scientific Programmer, Security Clearance—Secret</i></p>	<p><b>2008 -</b></p> <p><b>2010 - 2011</b></p> <p><b>2009 - 2010</b></p> <p><b>2007 - 2009</b></p> <p><b>2005 - 2007</b></p>

- [1] L. Rabern. A better lower bound on average degree of 4-list-critical graphs. *Electron. J. Combin.*, **23** (3), 2016.
- [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.*, **23** (3), 2016.
- [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.*, **23** (2), 2016.
- [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.*, **29**(4):1792-1814, 2015.
- [11] D.W. Cranston and L. Rabern. Brooks' Theorem and Beyond. *J. Graph Theory*, **80**(3):199-225, 2015.
- [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.  $\Delta$ -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<sup>A</sup>T<sub>E</sub>X.
  - Operating Systems: UNIX/Linux, Windows.