

Douglas K. Childers

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Current Position:	<p>Post-Doctoral Fellow in Section of Statistical Genetics (SSG) <i>University of Alabama at Birmingham, Birmingham, AL</i></p>	<i>Present, 2009</i>
	<p>Present Interests</p> <ul style="list-style-type: none"> ▪ Dynamical systems ▪ Low-dimensional Topology ▪ Population Genetics ▪ Statistical Genetics 	
Education:	<p>Doctorate of Philosophy, Applied Mathematics <i>University of Alabama at Birmingham</i></p> <p>Dissertation Topic: Complex Dynamics Tool of Research: French Minor: Applied Mathematics in Biology and Physics</p>	<i>August, 2006</i>
	<p>Master of Science, Mathematics <i>University of Alabama at Birmingham</i></p> <p>Research topic: Rotation numbers of piecewise linear maps of the circle</p>	<i>2001</i>
	<p>Bachelor of Science, Mathematics <i>University of Alabama at Birmingham</i></p> <p>Minor: French</p>	<i>1999</i>
	<p>Academic Awards</p> <p><i>August, 2006:</i></p> <ul style="list-style-type: none"> Outstanding PhD Student of the Year (Mathematics) Inducted into the Phi Kappa Phi Society <p><i>1999-2006: Fellowships</i></p> <ul style="list-style-type: none"> GAANN (research) MCTP (research) GK-12 (education) <p><i>1997-1999: Fast-track Scholarship</i></p>	
Skills:	<p>Programming Languages C/C++, UNIX shell scripts, Fortran</p>	
	<p>Statistical Packages SAS, SPSS, R</p>	

<p>Research:</p>	<p>Publications</p> <ul style="list-style-type: none"> • A. Blokh, D. K. Childers, J. C. Mayer, and L. Oversteegen. <i>Non-degenerate quadratic laminations</i>. Submitted. • D.K. Childers and D.B. Allison. <i>The ‘obesity paradox’: A parsimonious explanation for the change in the relation between obesity and mortality rate with aging?</i> Submitted. • D.K. Childers, G. Kang, N. Liu, G. Gao, and K. Zhang. <i>Application of imputation methods for the analysis of genome-wide association studies</i>. To appear in the GAW16 Proceedings, 2008. • G. Kang, D.K. Childers, N. Liu, K. Zhang, and G. Gao. <i>Genome-wide association studies of Rheumatoid Arthritis data via multiple hypothesis testing methods for correlated tests</i>. To appear in the GAW16 Proceedings, 2008. • D. K. Childers. <i>Are there critical points on the boundaries of mother hedgehogs?</i> Fields Institute Communications 53, pg 75-89, 2008. • S. Heymsfield, D.K. Childers, J. Beetsch, D. Allison, and A. Pietrobelli. <i>Body size and human energy requirements: reduced mass-specific resting energy expenditure in tall adults</i>. Journal of Applied Physiology, 103 (5): 1543-50, November, 2007. • D. K. Childers. <i>Wandering polygons and recurrent critical leaves</i>. Ergodic Theory and Dynamical Systems 27, no. 1, pp. 87-107, 2007. • D. K. Childers, J. C. Mayer, H. M. Tuncali, and E. D. Tymchatyn. <i>Indecomposable continua and the Julia sets of rational maps</i>. Contemporary Mathematics, Vol. 396, pp. 1-20, 2006. • D. K. Childers, J. C. Mayer, and J. T. Rogers, Jr. <i>Indecomposable continua and the Julia sets of polynomials, II</i>. Topology and its Applications, Vol. 153, pp. 1593-1602, 2006. <p><u>In Preparation:</u></p> <ul style="list-style-type: none"> • D.K. Childers and K. Zhang. <i>A set association approach to genome-wide association studies: using simulated data to calculate the power</i>. In preparation.
	<p>Recent Presentations</p> <ul style="list-style-type: none"> • Optimal Testing in Genome-Wide Association Studies: my K-25 application. SSG Grant Club, 2009. • Application of imputation methods for the analysis of the GAW 16 Rheumatoid Arthritis data. 2008 GAW 16 workshop at St Louis, MO. • The ‘obesity paradox:’ a parsimonious explanation for observed data in the relationship between obesity and mortality rate with aging? 2008 Obesity and Weight Loss Projects, University of Alabama at Birmingham. • Imputation-based methods of genome-wide analysis. 2008 SSG Summer Retreat, University of Alabama at Birmingham. • On the obesity paradox. FASEB J. 2008. • Recurrent critical points. 2008 Mathematics Spring Colloquium. Baylor University, Waco, TX. • Wandering polygons. 2008 Topology Seminar. Baylor University, Waco, TX. • Current Research. 2008 SSG Winter Retreat, University of Alabama at Birmingham. • Pathway-based approaches for analysis of genome-wide association studies. 2007 SSG Journal Club, University of Alabama at Birmingham. • Boolean Dynamics of Genetic Networks Inferred from Microarray Time Series Data. 2007 Microarray Lab Meeting, University of Alabama at Birmingham. • PHASE’s Method for Inferring Haplotypes. 2007 Statistical Methods for Genetic Analysis, II course at University of Alabama at Birmingham. • Biological Robustness. Keynote Speaker for 2007 Spring Topology and Dynamical Systems Conference at University of Missouri-Rolla, Rolla, MO. • Review of Funded NSF Statistical Genetic Method Grants. 2007 SSG Grant Writing Club at University of Alabama at Birmingham.

- Could the Dynamics of a Gene Network Identify the Genes That Cause a Complex Disease? 2006 SSG Seminar at University of Alabama at Birmingham.

Recent Seminars and Courses

Active Participant of SSG

- Grant Writing Club
- Journal Club
- Seminars

Co-organizer for SSG

- 2008 StatGen Short Courses on Statistical Genetic Software

Recent Courses Attended

2008 GAW 16 Workshop. St. Louis, MO.

2007 Short Course on Complex Trait Analysis at Jackson Laboratory, Bar Harbor, MN

2007 Grant Writing Workshop, University of Alabama at Birmingham

2007 International Workshop on Methodology of Twin and Family Studies, Boulder, CO

2007 Statistical Genetics for Obesity & Nutrition Researchers, Baylor Medical Center.

2006-07 Statistical Methods for Genetic Analysis: I and II, University of Alabama at Birmingham

Past Seminars and Research Projects

- Lamination Seminar:
 - ⇒ Provided a partial answer to a question posed by Fields Medalists William Thurston.
- Mathematical Modeling in Pathology (Gene Therapy)
- Seminar in Small World Networks (Physics)
- Chaos in Ecology Workshop at the University of Wyoming
- Renormalization Workshop at the Fields Institute
- Holomorphic Dynamics Workshop the at Fields Institute

Selected Awards

- Travel Scholarship: GAW 16 Workshop, 2008.
- Full Scholarship: Short Course on Complex Trait Analysis at Jackson Laboratory, 2007
- Keynote Speaker: Spring Topology and Dynamical Systems Conference, 2007
- Young Research Investigator: Invited Participant
 - ⇒ Holomorphic Dynamics Workshop at the Fields Institute, 2006
 - ⇒ Renormalization Workshop at the Fields Institute, 2005
- Advanced Junior Scientist: Invited Speaker
 - ⇒ AMS-SIAM Joint Summer Research Conference, 2004

Teaching:	Instructor Strayer University Fundamentals of Mathematics Descriptive Statistics University of Alabama at Birmingham Calculus II Introduction to Mathematical Modeling Intermediate Algebra	<i>2006-2007</i> <i>2002-2006</i>
	Mentor Tutor, Strayer University University of Alabama at Birmingham Chaos in Ecology, Mentor Introduction to Mathematical Modeling, Assistant Intermediate Algebra, Assistant	<i>2006-2007</i> <i>2002-2006</i>
	Education Fellowship GK-12, University of Alabama at Birmingham Assisted and instructed high school teachers and students in developing mathematical modeling projects.	<i>2001-2003</i>
Memberships & Affiliations: <ul style="list-style-type: none"> • American Mathematical Society • Phi Kappa Phi 		
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