Sami Davies

Contact Information

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Education

Carnegie Mellon University   08/2011-05/2015

Degree: BS in Mathematical Sciences, minor in Economics   College and University Honors
In Major QPA: 3.78/4.0

Some Research

UIC- Department of Mathematics, Statistics, and Computer Science
1/2016-present
Independent Study

UIC-Department of Mathematics, Statistics, and Computer Science
10/2015-present
Independent Study

> Gave implementations of algorithms which can find knight's tours on small Aztec diamonds and
> showed traditional inductive arguments for knight's tours fail for Aztec diamonds. This work was
> under the direction of Carl Yerger, and has been extended by Chenxiao Xue. The resulting paper,
> *Algorithms for Finding Knight's Tours on Aztec Diamonds*, is in review.

CMU- Department of Mathematical Sciences   02/2015-05/2015
Independent Study

> Gave implementations of algorithms which can find knight's tours on small Aztec diamonds and
> showed traditional inductive arguments for knight's tours fail for Aztec diamonds. This work was
> under the direction of Carl Yerger, and has been extended by Chenxiao Xue. The resulting paper,
> *Algorithms for Finding Knight's Tours on Aztec Diamonds*, is in review.

Brown University- Department of Applied Mathematics   06/2014-08/2014
Leadership Alliance Summer Research Program

> Under the direction of Johnny, Gopal Yalla and I numerically and analytically examined the
> behavior of solutions of the one dimensional generalized model vorticity equation in search of
> determining whether solutions to the three dimension Euler Equations exist globally.

CMU- Department of Mathematical Sciences   06/2013-08/2013
Summer Undergraduate Applied Mathematics Institute

> Under the direction of Gregory Johnson, I found and proved properties in binomial coefficients
> produced using the factorial defined by Manjul Bhargava over geometric progressions.

Teaching

- **Math 121** (UIC Pre-Calculus, Fall 2015) Teach 3 sections twice each week, held weekly office
  hours, graded exams
- **21-241** (CMU Matrices and Linear Transformations, Spring 2015) Teach 1 section twice each week,
  held weekly office hours, graded exams and weekly homeworks

Relevant Coursework

Completed at Carnegie Mellon University:

Principles of Computing	Discrete Mathematics (2 semesters)	Linear Algebra (2 semesters)
Differential Equations	Principles of Real Analysis I	Algebraic Structures Mathematical
Finance (2 semesters)	Operations Research Combinatorics	Numerical Methods
Probability (2 semesters)	Principles of Real Analysis II Graph Theory	Logic and Proofs

Completed/ In Progress at the University of Illinois at Chicago:

The Probabilistic Method	Computer Algorithms II	Real Analysis (Measure Theory)
Foundations in Data Science	Discrete Geometry	Complex Analysis

Management and Leadership Experience

- Community Advisor for Morewood Gardens   08/2014-05/2015
- Resident Assistant for Morewood E-Tower, Donner House   08/2012-05/2013, 08/2013-05/2014
- Vice Preisdent for Kappa Kappa Gamma: Delta Xi Chapter   01/2013-12/2013

Programming Languages

Experience working with LaTeX, Python, Maple, Matlab