

# ANDREW LEDOAN

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University of Tennessee at Chattanooga  
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## EDUCATION

University of Illinois at Urbana–Champaign	Mathematics	Ph.D., 2007
<b>Doctoral Advisor A. Zaharescu</b>		
University of Illinois at Urbana–Champaign	Mathematics	M.S., 2006
San José State University	Mathematics	M.S., 2001
<b>Master’s Advisor D. A. Goldston</b>		
San José State University	Electrical Engineering	B.S., 1993

## ACADEMIC APPOINTMENTS

2015-present	University of Tennessee at Chattanooga	Associate Professor of Mathematics
2018-2019	University of Tennessee at Chattanooga	Associate Head for Graduate Studies and Research
2016-2018	University of Tennessee at Chattanooga	Associate Department Head
2012-2015	University of Tennessee at Chattanooga	Assistant Professor of Mathematics
2011-2012	University of Tennessee at Chattanooga	Visiting Assistant Professor
2010-2011	Boston College	Visiting Assistant Professor
2007-2010	University of Rochester	Postdoctoral Faculty/VAP <b>Postdoctoral Advisor S. M. Gonek</b>
2001-2007	University of Illinois at Urbana–Champaign	Graduate Teaching Assistant
2000-2001	San José State University	Lecturer
1999-2000	San José State University	Teaching Associate

## EDITORIAL BOARDS

2018-present	Punjab University Journal of Mathematics	Associate Editor
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## AWARDS

Dean’s Award, College of Arts and Sciences Grants Person of the Year, University of Tennessee at Chattanooga (4/2019)

## GRANTS AND FUNDING

**A. H. Ledoan (PI)**, J. Wang (Co-PI), R. Nichols (Senior Personnel), and S. Marlow Ormsby (Senior Personnel), [REU Site: Research Training for Undergraduates in Mathematical Analysis with Applications in Allied Fields](#), National Science Foundation Award No. 1852288 (\$282,659, 5/2019-4/2022)

**A. H. Ledoan (PI)**, R. Nichols (Co-PI), and C. Gao (Co-PI), Chattanooga Math Circle, [Mathematical Association of America Dolciani Mathematics Enrichment Grants](#) (\$5,966, 4/2017-5/2019)

J. R. Graef (PI), L. Kong (Co-PI), **A. H. Ledoan (Senior Personnel)**, and Min Wang (Senior Personnel), REU Site: Differential/Difference Equation Models and Number Theory, National Science Foundation Award No. 1261308 (\$290,000, 5/2013-4/2017)

L. Kong (PI), J. R. Graef (Co-PI), and **A. H. Ledoan (Co-PI)**, Modeling Online Social Network Dynamics and Predicting Information Diffusion with Fractional Differential Equations, Center of Excellence in Applied Computational Science and Engineering FY2019 CEACSE Award (\$96,380, 7/2018-6/2019)

## AREAS OF SPECIALIZATION

Number Theory	Riemann zeta-function, L-functions, arithmetic functions, prime numbers, Farey series, sequences, exponential sums, sieve methods, billiards
Probability and Mathematical Statistics	Gaussian analytic functions, random polynomials, random series

## RESEARCH PUBLICATIONS

1. E. Alkan, **A. H. Ledoan**, A. M. Vâjâitu, and A. Zaharescu, Discrepancy of sets of fractions with congruence constraints, *Rev. Roumaine Math. Pures Appl.*, 51 (2006), No. 3, 265–276
2. E. Alkan, **A. H. Ledoan**, and A. Zaharescu, A parity problem on the free path length of a billiard in the unit square with pockets, *Funct. Approx. Comment. Math.*, 35 (2006), 19–36
3. E. Alkan, **A. H. Ledoan**, A. M. Vâjâitu, and A. Zaharescu, Discrepancy of fractions with divisibility constraints, *Monatsh. Math.*, 149 (2006), No. 3, 265–276
4. E. Alkan, **A. H. Ledoan**, and A. Zaharescu, On Dirichlet L-functions and the index of visible points, *Illinois J. of Math.*, 51 (2007), No. 2, 455–477
5. E. Alkan, **A. H. Ledoan**, M. Vâjâitu, and A. Zaharescu, On the index of fractions with square-free denominators in arithmetic progressions, *Ramanujan J.*, 16 (2008), No. 2, 131–161
6. E. Alkan, **A. H. Ledoan**, and A. Zaharescu, Asymptotic behavior of the irrational factor, *Acta Math. Hungar.*, 121 (2008), No. 3, 293–305
7. **A. Ledoan** and A. Zaharescu, Real moments of the restrictive factor, *Proc. Indian Acad. Sci. (Math. Sci.)*, 119 (2009), No. 4, 559–566
8. **A. H. Ledoan** and A. Zaharescu, Square-full divisors of square-full integers, *Integers*, 10 (2010), #A20, 243–256

9. **A. H. Ledoan** and S. M. Gonek, Zeros of partial sums of the Riemann zeta-function, *Int. Math. Res. Not.*, Vol. 2010, No. 10, 1775–1791
10. **A. H. Ledoan** and D. A. Goldston, Jumping champions and gaps between consecutive primes, *Int. J. Number Theory*, 7 (2011), No. 6, 1–9
11. **A. Ledoan** and A. Zaharescu, Explicit formulas for the pair correlation of zeros of Riemann’s zeta-function, *Comment. Math. Univ. St. Pauli*, Vol. 60 (2011), No. 1, 2, 171–188
12. **A. Ledoan**, M. Merkli, and S. L. Starr, A universality property of Gaussian analytic functions, *J. Theoret. Probab.*, Vol. 25 (2012), No. 2, 496–504
13. **A. Ledoan** and A. Zaharescu, The pair correlation of homotetic images of zeros of the Riemann zeta-function, *J. Math. Anal. Appl.*, 395 (2012), 25–283
14. D. A. Goldston and **A. H. Ledoan**, On the differences between consecutive prime numbers, I, *Combinatorial number theory: Proceedings of the “Integers Conference 2011,” Carrollton, Georgia, October 26-29, 2011*, 37–44, De Gruyter Proc. Math., De Gruyter, Berlin, 2013
15. R. Arindam, **A. Ledoan**, and A. Zaharescu, Zeros of partial sums of the Dedekind zeta function of a cyclotomic field, *J. Number Theory*, 136 (2014), 118–133
16. **A. Ledoan**, P. Spiegelhalter, and A. Zaharescu, Eigenvalues and arithmetic functions on  $\mathrm{PSL}_2(\mathbb{Z})$ , *Integers*, 14 (2014), #A14, 1–8
17. **A. Ledoan** and A. Zaharescu, A divisibility obstruction for certain walks on Gaussian integers, *Integers*, 14 (2014), #A56, 1–8
18. K. Crosby, J. Eliseo, **A. Ledoan**, and D. Mazowiecki, Zeros of Partial Sums of the Square of the Riemann Zeta-Function, *Collaborative Mathematics and Statistics Research* (ed. J. Rychtář, M. Chhetri, S. Gupta, R. Shivaji), Springer Proc. Math. Statist., 109 (2015), 51–65
19. D. A. Goldston and **A. H. Ledoan**, The jumping champion conjecture, *Mathematika*, 61 (2015), Issue 3, 719–740
20. D. A. Goldston and **A. H. Ledoan**, Limit Points of the Sequence of Normalized Differences Between Consecutive Prime Numbers, *Analytic Number Theory* (ed. C. Pomerance, M. Th. Rassias), 115–125, Springer Int. Publ., Switzerland, 2015
21. **A. Ledoan**, Explicit formulas for the distribution of complex zeros of a family of random sums, *J. Math. Anal. Appl.*, 444 (2016), 1304–1320
22. K. Ferrier, M. Jackson, **A. Ledoan**, D. Patel, and H. Tran, The expected number of complex zeros of complex random polynomials, *Illinois J. of Math.*, 61 (2017), No. 1–2, 211–224
23. S. Funkhouser, D. A. Goldston, and **A. H. Ledoan**, Distribution of Large Gaps Between Primes, *Irregularities in the Distribution of Prime Numbers: From the Era of Helmut Maier’s Matrix Method and Beyond* (ed. J. Pintz, M. Th. Rassias), 45–67, Springer Int. Publ., Switzerland, 2018
24. **A. H. Ledoan**, The discrepancy of Farey series, *Acta Math. Hungar.*, 152 (2018), Issue 2, 465–480
25. E. Addison, **A. Ledoan**, S. Smith, and R. Vrandenburgh, Average intensity of the distribution of complex zeros of a class of random polynomials, submitted for publication
26. J. R. Graef, L. Kong, **A. H. Ledoan**, and M. Wang, Modeling online social network dynamics using fractional-order epidemiological models, submitted for publication

27. C. Gugg and **A. H. Ledoan**, On a theorem of N. P. Romanoff, submitted for publication
28. D. A. Goldston and **A. H. Ledoan**, On the differences between consecutive prime numbers, II, in preparation

#### SELECTED LECTURES

1. Odd perfect numbers, Number Theory Seminar, University of Illinois at Urbana–Champaign, Urbana, IL (5/2002)
2. Dirichlet L-functions and the index of visible points, Midwest Number Theory Conference for Graduate Students III, University of Wisconsin, WI (10/2005)
3. Discrepancy of fractions with divisibility constraints, AMS–MAA Joint Mathematics Meetings, San Antonio, TX (1/2006)
4. Applications of Farey fractions and Kloosterman sums to statistical mechanics, Conference on Number Theory and Random Matrix Theory, University of Rochester, Rochester, NY (6/2006)
5. Zeros of partial sums of the Riemann zeta-function, Department of Mathematics Colloquium Series, University of Rochester, NY (11/2008)
6. The complex zeros of random polynomials, Number Theory Seminar, University of Rochester, Rochester, NY (11/2008)
7. Zeros of partial sums of the Riemann zeta-function, 2009 Graduate Workshop on Zeta Functions, L-Functions and their Applications, Utah Valley University and Brigham Young University, Orem, UT (6/2009)
8. Zeros of partial sums of the Riemann zeta-function, Department of Mathematics Number Theory and Representation Theory Seminar, Boston College, Newton, MA (11/2010)
9. Zeros of partial sums of the Riemann zeta-function, Department of Mathematics Colloquium Series, William Paterson University, Wayne, NJ (3/2011)
10. A universality property of Gaussian analytic functions, AMS 2011 Eastern Sectional Meeting (No. 1070), College of the Holy Cross, Worcester, MA (4/2011)
11. On the differences between consecutive prime numbers, I, Integers Conference 2011, University of West Georgia, Carrollton, GA (10/2011)
12. On the differences between consecutive prime numbers, II, AMS 2012 Eastern Sectional Meeting (No. 1082), University of Rochester, Rochester, NY (9/2012)
13. Differences between consecutive primes, SERMON (SouthEastern Regional Meeting on Numbers) 2013, High Point University, High Point, NC (4/2013)
14. Limit points of the sequence of normalized gaps between consecutive primes, Integers Conference 2013: Erdős Centennial Conference, University of West Georgia, Carrollton, GA (10/2013)
15. Zeros of partial sums of the Riemann zeta-function, Summer Colloquium Series, Department of Mathematics, University of West Georgia, Carrollton, GA (7/2014)
16. On the differences between consecutive primes, Mathematics Colloquium, Department of Mathematics, University of Alabama at Birmingham, Birmingham, AL (4/2015)

17. Explicit formulas for the distribution of complex zeros of random polynomials, Fifteenth International Conference in Approximation Theory, San Antonio, TX (5/2016)
18. On the differences between consecutive prime numbers, II, Integers Conference 2016, University of West Georgia, Carrollton, GA (10/2016)
19. Distribution of large gaps between primes, ICOMAS (International Conference on Mathematics and Statistics) 2018, University of Memphis, Memphis, TN (5/2018)
20. Average number of roots of random polynomials, IX Jaén Conference on Approximation Theory, Universidad de Jaén, Úbeda, Jaén, Spain (7/2018)
21. The complex roots of random sums, Departamento de Matemáticas, Universidad de Cádiz, Cádiz, Spain (7/2018)
22. Differences between consecutive prime numbers (update report), Integers Conference 2018, Augusta University, Augusta, GA (10/2018)

## TEACHING AND ADVISING

### A. University of Tennessee at Chattanooga

MATH 1720	Precalculus II
MATH 1830	Calculus for Management, Life, and Social Science
MATH 1910	Calculus I
MATH 1911	Calculus I Laboratory
MATH 1920	Calculus II
MATH 1950	Calculus with Analytic Geometry I
MATH 1960	Calculus with Analytic Geometry II
MATH 2030	Discrete Mathematics for Computer Science
MATH 2450	Introduction to Differential and Difference Equations
MATH 2560	Calculus with Analytic Geometry III
MATH 3100	Applied Statistics
MATH 3510	Introduction to Analysis I
MATH 4130/5130	Introduction to Probability and Statistics
MATH 4250	Modern Algebra I
MATH 4270/5270	Elementary Number Theory
MATH 4280/5280	Analytic Number Theory
MATH 4300/5300	Mathematics of Interest
MATH 4350/5350	Mathematics of Finance
MATH 4510/5000	Introduction to Analysis II
MATH 4600	Numerical Analysis I
MATH 4750	Research Seminar
MATH 4995	Departmental Thesis
MATH 4999r	Group Studies
MATH 5010	Advanced Special Topics
MATH 5560	Real Analysis

MATH 5910r Special Topic  
MATH 5998r Researchs  
MATH 7950r Doctoral Research  
MATH 7997r Individual Studies

B. Boston College

MATH 4 Finite Probability and Applications  
MATH 7 Ideas in Mathematics

C. University of Rochester

MATH 140A Calculus with Foundations  
MATH 141 Calculus I  
MATH 150 Discrete Mathematics  
MATH 162 Calculus IIA  
MATH 164 Multidimensional Calculus  
MATH 201 Introduction to Probability  
MATH 210 Introduction to Financial Mathematics  
MATH 282 Introduction to Complex Variables  
MATH 391W Independent Study

D. University of Illinois at Urbana–Champaign\*

MATH 118 A Mathematical World (Numeracy)  
MATH 124 Finite Mathematics  
MATH 231 Calculus II  
MATH 234 Calculus for Business I  
MATH 241 Calculus III

\*Listed in [“An Incomplete List of Teachers Ranked as Excellent by Their Students \(2006-2007\)”](#)

E. San José State University

MATH 8 College Algebra  
MATH 30 Calculus I

F. Research Experiences for Undergraduates

Organizer and mentor for REU Site: Research Training for Undergraduates in Mathematical Analysis with Applications in Allied Fields (National Science Foundation Grant DMS-1852288, 5/2019-4/2022); recruited 11 participants for 2019 and currently mentoring

Emily Eckels Emory University, B.S.

Steven Jin University of Maryland at College Park, B.S.

Brian Tobin Harvard University, B.S.

Mentor for 10 (out of 24) participants for REU Site: Differential/Difference Equation Models and Number Theory (National Science Foundation Grant DMS-1261308, 5/2013-4/2017)

Kathryn Crosby	Oklahoma State University, M.S.
Jordan Eliseo	University of North Carolina at Greensboro, B.S.
David Mazowiecki	William Paterson University, B.S.
Katrina Ferrier	Georgia Institute of Technology, M.S. (in progress)
Micah Jackson	University of California–Irvine, Ph.D. (in progress)
Dhir Patel	Ohio State University, Ph.D. (in progress)
Huong Tran	Duke University, Ph.D. (in progress)
Ethan Addison	Notre Dame University, Ph.D. (in progress)
Spencer Smith	University of Missouri at Kansas City, M.S.
Richard Vrandenburg	University of Virginia, Ph.D. (in progress)

#### G. Undergraduate supervision

Melissa Miller (B.S., 2016)  
 Shannon Hyder (B.S., 2018)

#### H. Graduate supervision

Ashley Holcomb (M.S., 2014)  
 Benjamin Kimsey (M.S., 2015)  
 Gentry Jones (M.S., 2015)  
 Christopher Corley (Ph.D., in progress)

### PROFESSIONAL SERVICE

#### A. Referee/reviewer for

##### **Research Journals**

Acta Arithmetica  
 Annales des Sciences Mathématiques du Québec  
 Bulletin of the Korean Mathematical Society  
 Bulletin of the Polish Academy of Sciences  
 Integers  
 International Journal of Number Theory  
 Journal of Approximation Theory  
 Journal of the London Mathematical Society  
 Journal of Mathematical Analysis and Applications  
 Journal of Number Theory  
 Lithuanian Mathematical Journal  
 London Mathematical Society Journal of Computation and Mathematics  
 Manuscripta Mathematica  
 Mathematica Slovaca  
 Mathematics (MDPI Open Access Journal)  
 Proceedings Mathematical Sciences  
 Punjab University Journal of Mathematics

Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas  
Revista Matemática Complutense  
The Mathematical Monthly  
The Ramanujan Journal

#### **Online Bibliographic Databases**

Mathematical Reviews  
Zentralblatt MATH

#### **Federal Grant Programs**

National Security Agency Mathematical Sciences Program (2011-2012)

B. Co-organizer of “[Special Session on Random Processes](#),” AMS 2011 Eastern Sectional Meeting, College of the Holy Cross, Worcester, MA

C. Committee membership

#### **Department Committees**

Ad Hoc

- Design of Computational Science: Computational and Applied Mathematics, Ph.D.
- Five-Year Undergraduate Program Review
- Mathematics Bylaws Revision (past chair)
- Mathematics Curriculum Revision (past chair)
- Mathematics Education Faculty Recruitment (past chair)

Advisory

Colloquium

Curriculum (past chair)

Faculty Recruitment (Mathematics and Joint Mathematics/SimCenter)

Library

Math Competitions

Reappointment, Tenure, and Promotion

Scheduling

Student Relations

#### **College of Arts and Sciences Committees**

Curriculum

#### **University Committees**

Academic Standards (past chair)

Departmental Honors (past chair)

Faculty Research

Faculty Senate, Division of Mathematics and Sciences Representative (two-year term)

Faculty Senate Undergraduate Curriculum (Provost’s designee)

Graduate Council

Graduate Curriculum (current chair)

## OUTREACH ACTIVITIES

Director and co-founder of [Chattanooga Math Circle](#) (2016-2019)

Faculty advisor for UTC Math Club (2017-present)

Co-manager of Math Kangaroo International Competition in Mathematics (2015)

Examination writer for [Precalculus 2013](#) for TMTA's 57th Annual Mathematics Contest

## DEVELOPMENT ACTIVITIES

Workshop "[L-Functions and Random Matrix Theory](#)," American Institute of Mathematics, Palo Alto, CA (5/2001)

American Institute of Mathematics School "[Recent Perspectives in Random Matrix Theory and Number Theory](#)," Isaac Newton Institute, Cambridge University, Cambridge, UK (3/2004)

NATO Advanced Study Institute Summer School "[Equidistribution in Number Theory](#)," Centre de Recherches Mathématiques, Université de Montréal, Montréal, QC (7/2005)

Midwest Number Theory Conference for Graduate Students III, University of Wisconsin, Madison, WI (10/2005)

Workshop "[L-functions and Related Themes](#)," Centre de Recherches Mathématiques, Université de Montréal, Montréal, QC (2/2006)

School and Conference "Number Theory and Random Matrix Theory," University of Rochester, Rochester, NY (5/2006)

2009 Graduate Workshop "[Zeta Functions, L-Functions and their Applications](#)," Utah Valley University and Brigham Young University, Orem, UT (6/2009)

## PROFESSIONAL EXPERIENCE

1994-2000 Trimble Navigation Limited Senior Software Engineer

1993-1994 Orion Instruments Incorporated Applications Engineer

1992-1993 General Magic Incorporated Assistant Engineer

At Trimble Navigation I designed OEM firmware for

- SVeeSix 6-Channel GPS Sensor
- [SVeeSix-CM3 GPS Module for Embedded OEM](#)
- Lassen-SK8 Receiver Module (8-channel, 32-correlator architecture, Scorpion ASIC)
- Palisade Network Time Protocol Smart Antenna
- Nortel Trimble GPS Timing Module 10 MHz Disciplined Oscillator
- Thunderbolt GPS Disciplined Clock for Wireless Infrastructure

and a language engine based on the SCPI programming language standard for communicating with the NT GPS timing module from an external computer.

At Orion Instruments I designed the first non-intrusive/real-time emulation for the [Motorola MC68306](#) and MC68307 MCUs. In addition, I worked with a consultant to implement an interface between the 8800's Forth-based kernel and Microtec Research's XRAY XHS68K Simulator/C Debugger for enabling real-time high-level debugging on the [Orion 8800 Emulator/Analyzer](#).

At General Magic I performed schematic capture, circuit simulation, and document control for the Teletouch Personal Intelligent Communicator. I worked with a senior hardware engineer to specify a Motorola HC05 MCU for the Magic Bus Interface Circuit to support plug and play. In addition, I conducted market research on low-voltage PCMCIA memory and I/O cards, flash memory, and EEPROM, and presented availability and pricing projections to licensees (such as Apple, IBM, Hitachi, Seiko Epson, and Sony).

## TECHNICAL SKILLS

Language    Assembly, C  
Systems    macOS, Unix, RTOS  
Software    Magma, Mathematica, MATLAB, PARI/GP  
Hardware    HP 64700 emulators, logic analyzers, digitizing oscilloscopes

## AFFILIATIONS

Mathematical Association of America	2018-present
American Mathematical Society	1999-present
Association for Symbolic Logic	1998-1999
Institute of Electrical and Electronics Engineers	1992-1997
IEEE Computer and Software Society	1993-1997