KYLE YATES

School of Mathematical and Statistical Sciences
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US Citizen

EDUCATION

2025	December	Ph.D. Mathematical Sciences, Clemson University (expected)
		• *Advisor: Shuhong Gao*
2022		M.S. Mathematical Sciences, Clemson University
		• *Advisor: Shuhong Gao*
2020		B.S. Applied Mathematics, San Diego State University
		• *Advisor: J. Carmelo Interlando*
		• *Emphasis in computational science & distinction in mathematics.*

EXPERIENCE

Research Positions

2025−present		Graduate Research Assistant, Clemson University
		• *Supported by the National Center for Transportation Cybersecurity.*
2022	Summer	Graduate Research Assistant, Clemson REU in Cryptography
		• *Project topic: zero-knowledge proofs.*
2021	Summer	Graduate Research Assistant, Clemson REU in Cryptography
		• *Project topic: homomorphic encryption.*

Teaching Positions

2021−2025	Graduate Teacher of Record, Clemson University
2020−2023	Graduate Teaching Assistant, Clemson University
2017−2020	Undergraduate Teaching Assistant, San Diego State University

RESEARCH INTERESTS

Cryptography, Homomorphic Encryption, Post-Quantum Cryptography, Learning With Errors, Operations Research, Computational Complexity Theory

PUBLICATIONS

Accepted Journal Papers

4. Leveled Homomorphic Encryption Schemes for Homomorphic Encryption Standard (with S Gao); 2025. *To appear in Journal of Mathematical Cryptology.*
Available from: https://eprint.iacr.org/2024/991

Submitted Journal Papers

3. On the Hardness of the $L_1 − L_2$ Regularization Problem (with Y Ouyang); 2024. In Revision. Available from https://arxiv.org/abs/2411.03216

Submitted Conference Papers

2. Experimental Evaluation of Post-Quantum Homomorphic Encryption for Privacy-Preserving V2X Communication (with AA Mamun, A Rakotondrafara, M Chowdhury, R Cartor, S Gao). In Review. Available from: https://arxiv.org/abs/2508.02461

Theses

1. Efficiency of homomorphic encryption schemes (MS thesis); 2022. Clemson University. Available from: https://tigerprints.clemson.edu/all_theses/3868/

PROJECT GROUPS

Towards Deployment-Ready Post-Quantum Cryptography Enabled Vehicle-to-Everything Communication (Graduate Assistant). National Center for Transportation Cybersecurity and Resiliency.

RESEARCH PRESENTATIONS

2025	October	AMS Special Session on Recent Advances in the Mathematics of Cryptography, AMS 2025 Fall Southeastern Sectional Meeting. *Security Analysis of Integer LWE with Rejection Sampling* (Talk). New Orleans, LA.
2025	March	AMS Special Session on Post-Quantum Cryptography, AMS 2025 Spring Southeastern Sectional Meeting. *Worst-Case Precision Accuracy Bounds in Approximate Homomorphic Encryption* (Talk). Clemson, SC.
2025	January	AMS Special Session on Cryptography & Related Fields, JMM 2025. *Leveled Homomorphic Encryption Schemes for Homomorphic Encryption Standard* (Talk). Seattle, WA.
2024	August	Clemson Graduate Student Seminar. *NP-hard $L_1 - L_2$ Minimization* (Talk). Clemson, SC.
2024	April	Math for All Satellite Conference. *Homomorphic Encryption and Secure Cloud Computing* (Talk). Clemson, SC.
2024	March	Data Security and Machine Learning in Industry Research Workshop. *Computation Budgeting in Leveled Homomorphic Encryption Schemes* (Talk). Clemson, SC.
2023	October	Clemson Graduate Student Seminar. *Homomorphic Encryption and Confidential Computing* (Talk). Clemson, SC
2023	April	Clemson Graduate Student Seminar. *Homomorphic Encryption and Confidential Computing* (Talk). Clemson, SC
2022	June	Clemson Mathematics REU. *Introduction to Homomorphic Encryption* (Talk). Clemson, SC.
2020	February	SDSU Student Research Symposium. *Ball-collision Decoding Analysis for Linear Codes in the McEliece Cryptosystem* (Poster). San Diego, CA.

TEACHING

Courses Taught at Clemson University (Instructor of Record)

2024	Fall	Statistics in Everyday Life (STAT 2220)
2024	Fall	Business Calculus I (MATH 1020)
2024	Spring	Calculus of One Variable II (MATH 1080)
2023	Fall	Calculus of One Variable I (MATH 1060, Residents in Science and Engineering)
2023	Spring	Calculus of One Variable I (MATH 1060)
2022	Fall	Business Calculus I (MATH 1020)
2022	Spring	Business Calculus I (MATH 1020)
2021	Fall	Business Calculus I (MATH 1020)

Guest Lectures at Clemson University

2025	Spring	Linear Programming (MATH 4400, 2 Lectures)

Courses TA'd at Clemson University

2025	Summer	Calculus of One Variable II (MATH 1080)
2025	Spring	Nonlinear Programming (MATH 8110)
2025	Spring	Linear Programming (MATH 4400)
2023	Summer	Differential and Integral Calculus (MATH 1070)
2021	Summer	Introduction to Ordinary Differential Equations (MATH 2080)
2021	Spring	Introduction to Ordinary Differential Equations (MATH 2080)
2020	Fall	Calculus of Several Variables (MATH 2060)

Courses TA'd at San Diego State University

2020	Spring	Elementary Differential Equations (MATH 337)
2019	Fall	Elementary Differential Equations (MATH 337)
2019	Spring	Elementary Differential Equations (MATH 337)
2018	Fall	Elementary Differential Equations (MATH 337)
2017	Fall	Precalculus (MATH 141)

COMMITTEES AND LEADERSHIP

Department Committees (Clemson)

2023−2024	Director Search Committee, School of Mathematical and Statistical Sciences
	• *Sole student representative on hiring committee for department's director search.*

Graduate Student Organizations (Clemson)
2024−2025   College of Science Student Advisory Board
2023−2025   SMSS Graduate Student Advisory Council (Chair)
2023−2024   Clemson Graduate Student Government (Senator)
2023−2024   Rules and Procedures Committee, Clemson Graduate Student Government
2022−2023   SMSS Graduate Student Advisory Council (Secretary)

Undergraduate Organizations (San Diego State)
2019−2020   Phi Mu Alpha Sinfonia Fraternity (President)
2018−2020   Staff and Student Leadership Team, San Diego State Marching Aztecs
2018−2019   Phi Mu Alpha Sinfonia Fraternity (Vice President)
2017−2018   Phi Mu Alpha Sinfonia Fraternity (Treasurer)

REVIEWING, JUDGING, AND PANELS

Academic Journal Reviews
  IEEE Transactions on Information Theory (1 review)

Other Judging and Reviewing
2025 April   Judge, Lander University Mathematics Academic Symposium
2024 April   Judge, Lander University Mathematics Academic Symposium
2024 February   Awards Reviewer, Clemson GSG Graduate Student Awards

Panels
2025 March   College of Science Graduate Student Panel, Clemson University
2024 August   Graduate Student Panel, Clemson New Graduate Student Orientation
2024 April   Graduate Instructor Panel, Clemson Graduate Student Teaching Seminar
2023 October   Mathematics-Opportunities in Research and Education Near2Peer Session
2023 July   Clemson Mathematics REU Graduate Student Informational Panel

CONFERENCE ORGANIZING

2025 March   AMS Special Session on Post-Quantum Cryptography. AMS Spring 2025 Southeastern
                 Sectional Meeting. Clemson, SC.

CONFERENCE VOLUNTEERING

2025 April   Math for All Satellite Conference. Clemson, SC.
2023 October   Palmetto Number Theory Series XXXVI. Clemson, SC.

HONORS, AWARDS, AND OTHER

  Nominee, SMSS Outstanding Graduate in Teaching Award (Clemson)
  Graduate Student Advisory Council Leadership Service and Enhancement Award (Clemson)
  Member, American Mathematical Society
  Mentor, SMSS GSAC Graduate Student Mentoring Program
  Oxford Study Abroad Programme in International Relations (Oxford University)
  Associated Students Study Abroad Scholarship (San Diego State)
  Weber Honors College (San Diego State)
  Dean's list, College of Sciences (San Diego State, F16, S17, F17, S18, F18, F19, S20)

TECHNICAL SKILLS

Relevant Coursework
  • Cryptography   • Data Analysis   • Scientific Computing
  • Mathematical Programming • Advanced Linear Programming • Nonlinear Programming
  • Probability   • Error-correcting Codes   • Data Structures

Software Proficiency
  MATLAB (intermediate), Python (intermediate), R (intermediate), LaTeX (expert)

Other Conferences and Workshops Attended

Year	Month	Event
2024	April	Math for All Satellite Conference. Clemson, SC.
2024	March	3rd Annual FHE.org Conference on Fully Homomorphic Encryption. Toronto, CA.
2024	March	Data Security & Machine Learning in Industry Research Workshop. Clemson, SC.
2024	January	Data Security & Machine Learning in Industry F2F with Industry. Clemson, SC.
2023	March	Amazon Web Services Immersion Day Workshop. Clemson, SC.
2022	March	BIRS-CMO Workshop, Algebraic Methods in Coding Theory. Virtual.
2021	July	Mathematics REU Conference at Clemson University. Clemson, SC.
2021	July	3rd Post-Quantum Cryptography Standardization Conference. Virtual.