

# Gregory J. Clark

## University of Oxford, Saïd Business School

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### Education

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- Ph.D. Mathematics** *May 2019*  
University of South Carolina, Columbia, SC.  
*Dissertation Title:* [On the Characteristic Polynomial of a Hypergraph](#)  
*Advisor:* Professor Joshua N. Cooper.
- B.S. Mathematics** *May 2014*  
Westminster College, New Wilmington, PA
- Budapest Semesters in Mathematics** *Spring 2013*  
Budapest, Hungary
- French Language and Culture Immersion Program** *Summer 2012*  
Paris, France

### Employment

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- University of Oxford** *2019 – Present*  
Postdoctoral Research Fellow  
Saïd Business School, Oxford, England
- Augmented Intelligence Labs** *2020 – Present*  
Co-founder, Director, and Inventor  
*Develop analysis and decision support systems for marketing leaders*  
Oxford, England

### Research Interests

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|------------------------------|--------------------------|
| <b>Mathematics</b>           | <b>Interdisciplinary</b> |
| Spectral Hypergraph Theory   | Social Networks          |
| Graph Statistics             | Trend Forecasting        |
| Computational Algebra        | Multi-Touch Attribution  |
| Pseudorandomness             | Social Evaluations       |
| $k$ -planar Crossing Numbers | Digital Migration        |
| Additive Combinatorics       | Echo Chambers            |

### Awards and Honors

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- SSRN Top Ten Downloaded Paper** *August-September 2021*
- [Preparing Future Faculty Certificate With Distinction in Teaching](#)** *Spring 2019*
- Outstanding Graduate Teaching Award** *Spring 2018*
- Graduate Peer Excellence Award** *Spring 2015*

## Research Publications

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12. Gregory J. Clark, Felipe Thomaz, and Andrew Stephen. On the Effect of Data Dimensionality on Eigenvector Centrality. <https://arxiv.org/abs/2201.12034>. *Submitted*
11. Gregory J. Clark. Comparing Eigenvector and Degree Dispersion with the Principal Ratio of a Graph. <https://arxiv.org/abs/2202.00325>. *Submitted*
10. Felipe Thomaz, Natalia Efremova, Francesca Mazzi, Gregory J. Clark, Ewan Macdonald, Rhonda Hadi, Jason Bell, and Andrew T. Stephen. A Machine learning approach to analyse the AI ethics discourse and build a managerial framework for AI ethics in business. *Submitted*
9. Gregory J. Clark and Joshua N. Cooper. Applications of the Harary-Sachs Theorem for Hypergraphs. *Linear Algebra and its Applications*, 649:354-374, 2022.
8. Gregory J. Clark and Joshua N. Cooper. A Harary-Sachs Theorem for Hypergraphs. *Journal of Combinatorial Theory, Series B*, 149:1-15, 2021.
7. Gregory J. Clark and Joshua N. Cooper. Adjacency Spectral Theory for Uniform Hypergraphs, *IMAGE (Bull Lin. Alg. Soc.)*, **62** (2019), pp. 7-19.
6. Gregory J. Clark and Joshua N. Cooper. Stably computing the multiplicity of known roots given leading coefficients. *Numer Linear Algebra Appl.* 2020; 27:e2275.
5. John Asplund, Éva Czabarka, Gregory J. Clark, et al. Using block designs in crossing number bounds. *J Combin Des.* 2019; 27: 586-597.
4. Gregory J. Clark and Joshua N. Cooper. On the Adjacency Spectra of Hypertrees, *Elec. J. Comb.*, **25** (2018), no. 2, pp. 2-48.
3. Gregory J. Clark and Gwen Spencer. New Bounds on the Biplanar Crossing Number of Low-dimensional Hypercubes. *Bulletin of the Institute of Combinatorics and its Applications (BICA)*, 83(2018), 52-60.
2. Amanda Bright, Gregory J. Clark, Charles Dunn, et al. Tiling Annular Regions with Skew and T-tetrominoes, *Involve, a Journal of Mathematics* 10-3 (2017), 505-521.
1. Gregory J. Clark. Optimal Numbers and Solutions in the Euclidean Algorithm, *The Pentagon, A Mathematics Magazine for Students*, 73-01 (2013), 23-35.

## Externally Commissioned Reports

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2. **Mars Campaign to Advance Action on Gender Equality** 2021  
Title: Here to be Heard  
Summary: Global study to shape a more inclusive society for all women.  
*Contributed to modeling of data and data analysis*  
Available at: <https://www.mars.com/heretobeheard>
1. **International Chamber of Commerce Research Foundation** 2021  
Title: Ethics for AI in Business  
Summary: Managerial framework for ethical adoption of AI in business.  
*Gathered and processed data, contributed to analysis and interpretation*  
Available on SSRN: <https://ssrn.com/abstract=3871867>  
*Top Ten Downloaded Paper on SSRN from August-September 2021*

## Selected Work-in-Progress

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3. Gregory J. Clark, Natalia Efromova, and Felipe Thomaz. Classifying Expert Opinion from Lived Experience. *In collaboration with Mars, Incorporated.*
2. Gregory J. Clark, Alexander Wiedemann, Felipe Thomaz, and John Hulland. Designed to Go Dark: An Examination of Incentives for Digital Black Markets to Self-Terminate.
1. Gregory J. Clark, Benjamin P. Evans, Diyi Liu. All for One and One for All: Co-opting social Movements as a Paradigm for Hashtag Framing on Twitter.

## Grants

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**SPARC Grant Recipient** (\$5,000) *Summer 2017*  
“A Mathematical Model of Dark Net Markets.” Collaboration with the Darla Moore School of Business. Graduate Research Grant is a merit-based award designed to ignite research and creative excellence across all disciplines.  
University of South Carolina, Columbia, SC

## Undergraduate Research Advisement

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Upon completion, each advisee composed a poster and presented their work at local conferences

2. **A Summary of Splitting Numbers for Integer Tiles** *Summer 2016*  
J. Folks, S. Lee, S. Miyasaki, C. Simmons, C. Stewart  
*Support for Minority Advancement in Research Training*  
*University of South Carolina Program for Research Interns*  
University of South Carolina, Columbia, SC
1. **Generalized Dinitz Conjecture** *Fall 2015-Summer 2016*  
E. Miller  
*Magellan Scholars Program*  
University of South Carolina, Columbia, SC

## Teaching Experience

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### University of Oxford, Saïd Business School

7. **Executive Diploma in Artificial Intelligence for Business** *Hilary, Michaelmas 2021*  
*Invited Lecturer: Descriptive, predictive, and prescriptive analytics*  
*Panel Discussion Co-Chair: Managed and directed discussion with thought leaders*
6. **MBA Marketing Core** *Michaelmas 2021, 2019*  
*Teaching Assistant: Segmentation, targeting, positioning, and customer value*
5. **Undergraduate Marketing Core** *Hilary 2022*  
*Tutorial Leader: Marketing as a driver of firm growth*

### University of South Carolina, Department of Mathematics

4. **Finite Mathematics, Math 170** *Fall 2015, Spring 2016, Summer 2015*  
*Instructor of Record: Set theory, probability, and counting.*
3. **Calculus I, Math 141** *Fall 2014, Spring 2015*  
*Teaching Assistant: Study of change with elements of algebra and geometry*
2. **Business Calculus, Math 122** *Fall 2018, Spring 2018, Fall 2017*  
*Instructor of Record: Study of profit, revenue, and cost through the lens of functions*
1. **Precalculus, Math 115** *Fall 2015*  
*Instructor of Record: Algebraic and trigonometric properties of functions*

## Educational Mentorship

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### Project Leader

*Fall 2020 – Present*

Instructed and managed a team of five data scientists at a multinational data analytics and brand consulting company as they integrated licensed IP into their workflow. Over 24 hours of direct instruction were given to ensure software was implemented in Python and TensorFlow.

Kantar, London, England

### Graduate Student Mentor

*Fall 2016 – Spring 2017*

**NSF EAGER Grant for Innovative Research award ID #1544346 & #1725295**

Mentored four novice instructors each semester (16 total over four semesters) as they transitioned from graduate teaching assistants to graduate student instructors. Conducted monthly observations of the novice instructors and held individual post-observation meetings. Facilitated biweekly group meetings with group of novice instructors.

University of South Carolina, Department of Mathematics

## Seminar Organization

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### USC Combinatorics Seminar Organizer

*Fall 2016 – Spring 2017*

Organised year-long departmental discrete mathematics seminar. Duties included inviting speakers, maintaining internal and external communications, promoting events, and managing technological issues as they arose.

University of South Carolina, Department of Mathematics

## Workshops Attended

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(Fully funded participant denoted by asterisk.)

4. **Summer Institute in Computational Social Science** *Summer 2022*  
University of Oxford, UK
3. **Teradata Vantage Workshop for Data Scientists\*** *Fall 2019*  
*Learned how to use Vantage platform for data science*  
London, UK
2. **NSF-CBMS Workshop on Additive Combinatorics\*** *Summer 2018*  
University of South Carolina, Columbia, SC
1. **Mathematical Research Communities\*** *Summer 2017*  
Beyond Planarity: Crossing Numbers of Graphs  
Snowbird Resort, Snowbird, UT

## Invited Talks

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(Travel support denoted by asterisk.)

8. **Summer Undergraduate Research Seminar** *Summer 2022*  
*Comparing the Spectral Ranking of a Hypergraph and its Shadow*  
Carnegie Mellon University, Pittsburgh, PA
7. **Innovations and Technology Division Information Exchange** *Fall 2021*  
*Current Research in Modeling Social Ecosystems*  
PNC Bank, Pittsburgh, PA
6. **Reputation Symposium\*** *Fall 2018*  
*Distinguishing Between Reputation and Influence of Users in a Complex System*  
University of Oxford, England, UK

5. **Research Highlight\*** *Spring 2018*  
*Designed to Fail: Determining Illicit Market Life Spans with Stochastic Calculus*  
 University of Oxford, England, UK
4. **Practice for Coordinators of Large Undergraduate Courses on Campus** *Fall 2017*  
*A Mentorship Model for Graduate Student Instructors in Large Undergraduate Courses*  
 University of South Carolina Center for Teaching Excellence, Columbia, SC
3. **Joint Mathematics Meeting\*** *Spring 2017*  
*Graduate Student Instructor Mentorship Model: A professional development that trains experienced graduate students to pedagogically mentor novice mathematics graduate student instructors*  
 Hyatt Regency Atlanta and Marriott Atlanta Marquis, Atlanta, GA
2. **AMS Sectional Meeting\*** *Fall 2016*  
*The Splitting Number of an Integer Tile*  
 North Carolina State University, Raleigh, NC
1. **Carolina Math Seminar** *Fall 2016*  
*The Splitting Number of an Integer Tile*  
 Columbia College, Columbia, SC

### **Selected Conferences and Seminars Attended**

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(Travel support denoted by asterisk.)

8. **Future of Marketing Initiative 5th Anniversary Symposium** *Trinity, 2022*  
 University of Oxford, England, UK
7. **UofSC Discrete Mathematics Seminar** *Spring 2022*  
*Comparing the Spectral Ranking of a Hypergraph and its Shadow*  
 University of South Carolina, Columbia, SC
6. **College of Arts and Science Seminar Series** *Spring 2022*  
*Measuring Influence in a Social Ecosystem*  
 Westminster College, New Wilmington, PA
5. **American Marketing Association Winter Academic Conference\*** *Spring 2022*  
 Las Vegas, NV
4. **Insights Live Series** *Spring 2022*  
 Meta, England, UK
3. **Humanizing Growth Webinar** *Spring 2022*  
 Institute for Real Growth, England, UK
2. **Future of Marketing Initiative Partners' Meeting** *Hilary, 2021*  
*Deep Dive into Multidimensional Trend Forecasting*  
 University of Oxford, England, UK
1. **American Marketing Association Winter Academic Conference** *Spring 2021*  
*Marketing Vice: The Influences and Impacts of Vice Platforms, Products, and Services*  
 St. Pete Beach, Florida
1. **Webcast Exclusive: UK's 100 Most Sustainable Brands** *Fall 2020*  
 Kantar, England, UK

## Peer Reviewer

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*In alphabetical order*

- Discrete Mathematics
- Involve, a Journal in Mathematics
- Linear Algebra and its Applications
- Linear and Multilinear Algebra

## Service Activities

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### **St Antony's Senior Common Room**

Oxford Saïd Business School SIM Meetings

Azure in Research Focus Group

Data Science and AI Capabilities Study Participant

Community Organization Diversity and Inclusion Chair

USC Center for Teaching Excellence Symposium Moderator

Discover USC Poster Session Judge

High School Mathematics Competition Volunteer

Completed Safe Space Training

*Michaelmas 2021 – Present*

*Hilary 2021*

*Hilary 2021*

*Michaelmas 2020*

*Spring 2020 – Present*

*Spring 2016, 2017*

*Spring 2016, 2017*

*Fall 2017*

*Spring 2015*