

# V.N. Vimal Rao

[RaoVNV@Illinois.edu](mailto:RaoVNV@Illinois.edu)  
[RaoVNV.github.io](https://github.com/RaoVNV)

## POSITIONS

---

### University of Illinois at Urbana-Champaign

Department of Statistics, Champaign, IL

Department of Educational Psychology, Champaign, IL

Teaching Assistant Professor

2023 – present

### University of Minnesota Twin-Cities

Department of Educational Psychology, Minneapolis, MN

Graduate Instructor

2019 – 2022

### George Washington University

Department of Clinical Research and Leadership, Washington, DC

Adjunct Assistant Professor

Course Director, HSCI 2117/3117

Adjunct Instructor

2024 – present

2017 – 2021

2016 – 2023

### Health Resources and Services Administration

Division of Policy and Data, HIV/AIDS Bureau, Rockville, MD

Chief (GS-1530-14), Data Management and Analysis Branch

Health Statistician (GS-1530-13), Data Management Branch

2015 – 2016

2014 – 2015

### US Census Bureau

Decennial Statistical Studies Division, Suitland, MD

Mathematical Statistician (GS-1529-9/11/12), Quality Assurance Branch

National Processing Center, Jeffersonville, IN

Mathematical Statistician (GS-1529-7/9/11), Statistical Methods Section

2010 – 2014

2009 – 2010

## EDUCATION

---

**PhD** Educational Psychology, University of Minnesota

2023

Quantitative Methods in Education, Statistics Education

Advisors: Robert delMas and Andrew Zieffler

Committee Members: Panayiota Kendeou and Erin Baldinger

**MA** Educational Psychology, University of Minnesota

2023

Psychological Foundations of Education, Learning and Cognition

Advisors: Jeffrey K. Bye and David DeLiema

**MS** Statistics, George Washington University

2013

**BS** Mathematics and Economics, University of Illinois

2008

Pure Mathematics

13. Legacy, C., Zieffler, A., **Rao, V.N.V.**, & delMas, R. (in press). Vampires and star-crossed lovers: Secondary teachers' reasoning about the connections between multivariate data and visualization. *Statistics Education Research Journal*.
12. Simpson, M.‡, & **Rao, V.N.V.** (2024). Association between generational trauma and progressive dementia types. *Minnesota Undergraduate Research & Academic Journal*, 6(1). Available at <http://z.umn.edu/MURAJ>
11. **Rao, V.N.V.**, Bye, J.K., & Varma, S (2024). The psychological reality of the learned “ $p < 0.05$ ” barrier. *Cognitive Research: Principles and Implications*, 9, 27. <https://doi.org/10.1186/s41235-024-00553-x>
10. Ancel, E.E.‡, Smith, M.L.‡, **Rao, V.N.V.**, & Munson, B. (2023). Relating Automated Acoustic Measures and Listener Ratings of Children's Productions of Word-Initial /ɪ/ and /w/. *Journal of Speech, Language, and Hearing Research*, 66(9), 3413-3427. [https://doi.org/10.1044/2023\\_JSLHR-22-00713](https://doi.org/10.1044/2023_JSLHR-22-00713)
9. **Rao, V.N.V.**, Mader, J.‡, & Friedlander, E. (2023). A framework for the design of gender inclusive activities. In E.M. Jones (Ed.), *Fostering Learning of Statistics and Data Science: Proceedings of the Satellite Conference of the International Association for Statistical Education*. Available at [https://iase-web.org/Webinars.php?p=230711\\_2000](https://iase-web.org/Webinars.php?p=230711_2000).
8. Running, K., Coddling, R.S., Varma, S., **Rao, V.N.V.**, & Wackerle-Hollman, A. (2023). Comparing the Effects of Concepts-First and Iterative Fraction Instruction Sequences: A Randomized Control Trial. *The Elementary School Journal*, 124(1), 85-108. <https://doi.org/10.1086/725730>
7. **Rao, V.N.V.**, Legacy, C., Zieffler, A., & delMas, R. (2023). Designing a sequence of activities to build reasoning about data and visualization. *Teaching Statistics*, 45(S1), S80-S92. <http://doi.org/10.1111/test.12341>
6. DeLiema, D., Hufnagle, A.S., **Rao, V.N.V.**, Baker, J., Valerie, J., & Kim, J. (2023). Methodological considerations and innovations at the intersection of video-based research traditions. *International Journal of Research and Method in Education*, 46(1), 19-36. <https://doi.org/10.1080/1743727X.2021.2011196>
5. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2022). Graduate students' effect size categorical boundaries. In S.A. Peters, L. Zapata-Cardona, F. Bonafini, & A. Fan (Eds.), *Proceedings of the 11<sup>th</sup> International Conference on Teaching Statistics* (pp. 1-6). <https://doi.org/10.52041/iase.icots11.T3C2>.
4. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2022). Categorical perception of  $p$ -values. *Topics in Cognitive Science*, 14(2), 414-425. <https://doi.org/10.1111/tops.12589>

3. Marupudi, V., Harsch, R.M., Park, J., Bye, J.K., **Rao, V.N.V.**, & Varma, S. (2022). Use of clustering in human solutions of the traveling salesperson problem. In J. Culbertson, A. Perfors, H. Rabagliati, & V. Ramenzoni (Eds.), *Proceedings of the 44th Annual Conference of the Cognitive Science Society* (pp. 424-430). <https://escholarship.org/uc/item/3t16j57m>.
2. Marupudi, V., Harsch, R.M., **Rao, V.N.V.**, Bye, J.K., Park, J., & Varma, S. (2021). The role of clustering in the efficient solution of small Traveling Salesperson Problems. In T. Fitch, C. Lamm, H. Leder, & K. Tessmar (Eds.), *Proceedings of the 43rd Annual Conference of the Cognitive Science Society* (pp. 1865-1871). <https://escholarship.org/uc/item/5q76r06x>.
1. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2021). Categorical perception of  $p$ -values. In T. Fitch, C. Lamm, H. Leder, & K. Tessmar (Eds.), *Proceedings of the 43rd Annual Conference of the Cognitive Science Society* (pp. 168-173). <https://escholarship.org/uc/item/7hw3s1rs>.

---

#### **PUBLICATIONS UNDER REVIEW** (<sup>‡</sup>FORMER STUDENT OR MENTEE)

1. May, N.<sup>‡</sup>, & **Rao, V.N.V.** (under review). Cooperative Learning in an Online Asynchronous Setting. *EduCAUSE Review*.

---

#### **PUBLICATIONS IN PREPARATION** (<sup>‡</sup>FORMER STUDENT OR MENTEE)

3. **Rao, V.N.V.**, Ge, X. (in preparation). *Rtutor.AI: Marrying R to ChatGPT to Support the Development of Students' Statistical and Computational Thinking*.
2. **Rao, V.N.V.** (in preparation). *How graduate students think about statistical tests*.
1. **Rao, V.N.V.**, Riegelman, A., Hurtado, I. L., Lisinker, R., & delMas, R. (in preparation). *A review of research uses of the Comprehensive Assessment of Outcomes in Statistics*. Retrieved from [osf.io/yf3zh](https://osf.io/yf3zh).

---

#### **GRANTS AWARDED**

4. Title: Harnessing GPT Technologies to Develop Students' Statistical and Computational Thinking  
 Agency: University of Illinois Center for Social and Behavioral Sciences  
 Program: Small Grant Program  
 Role: Principal Investigator  
 Award: \$29,450  
 Project Period: 2024 – 2025
3. Title: Building a Modern Assessment for Statistical Literacy  
 Agency: University of Illinois Office of the Provost  
 Program: Provost's Initiative on Teaching Advancement  
 Role: Co-Principal Investigator (PI: Kelly Findley)  
 Award: \$7,500

Project Period: 2024 – 2025

2. Title: An Authentic Introduction to Data and Statistics  
Agency: University of Illinois University Library  
Program: Open Educational Resources Incentive Program  
Role: Project Director  
Award: \$6,000  
Project Period: 2024 – 2026
1. Title: Developing Gender Inclusive Activities for Quantitative Methods Courses  
Agency: Association for Psychological Science  
Program: Fund for Teaching and Public Understanding of Psychological Science  
Role: Project Director  
Award: \$5,000  
Project Period: 2023 – 2024

## GRANTS SUBMITTED

---

1. Title: Learning Statistics – The Neuroscience of Desirable Difficulties  
Agency: National Science Foundation  
Program: Small Grant Program  
Role: Senior Personnel  
Requested Total Budget: \$1,499,820  
Project Period: 2025 – 2029

## INVITED TALKS

---

7. **Rao, V.N.V.** (2024, November). *On the Cognition of  $p$ -values*. [Invited Talk]. Cognitive Science of Teaching & Learning Division Seminar, University of Illinois, Urbana, Illinois. Sponsored by Dr. Cynthia D'Angelo.
6. Le, L., Jiroutek, M., **Rao, V.N.V.**, & Foti, S. (2024, January). *Biostatistical Literacy: What is it, and how can we teach it?* [[Invited Seminar](#)]. Royal Statistical Society Teaching Section, online. Sponsored by Dr. Elinor Jones.
5. **Rao, V.N.V.** (2023, October). *Intro Stats in a GPT World* [Invited Talk]. Mathematics Learning Research Group, Michigan State University, East Lansing, Michigan. Sponsored by Dr. Jenny Green.
4. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2022, September). *The Psychology of Statistics* [[Invited Talk](#)]. Stochastic Modeling and Computational Statistics, Pennsylvania State University, State College, Pennsylvania. Sponsored by Dr. Matthew Beckman and Dr. Stephen Berg.
3. **Rao, V.N.V.** (2022, May). *Thinking about thinking: A preliminary analysis of the use of eye tracking in the study of statistical thinking* [Invited Talk]. Teaching and Learning Lab,

University of California Los Angeles, Los Angeles, California. Sponsored by Dr. Jim Stigler and Dr. Karen Givvin.

2. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2021, October). *Statistical Significance and the Categorization of p-values* [Invited Talk]. Percepts and Concepts Lab, Indiana University, Bloomington, Indiana. Sponsored by Dr. Robert Goldstone.
1. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2021, October). *Statistical Significance and the Categorization of p-values* [[Invited Talk](#)]. Psychological Foundations of Education Research Talks, University of Minnesota, Minneapolis, Minnesota. Sponsored by Dr. Martin Van Boekel.

---

#### CONFERENCE TALKS AND PRESENTATIONS (<sup>‡</sup>FORMER STUDENT OR MENTEE)

---

19. May, N.<sup>‡</sup>, & **Rao, V.N.V.** (2024, November). *Cooperative learning in an online asynchronous statistics course: Instructor and student perspectives* [Presentation]. Towards Online Excellence: Illinois Online Higher Education Symposium, online.
18. **Rao, V.N.V.**, Mader, J.<sup>‡</sup>, & Friedlander, E. (2023, July). *A framework for the design of gender inclusive activities* [Paper Presentation]. 13<sup>th</sup> Annual Satellite Conference of the International Association for Statistical Education (IASE), Toronto, Ontario, Canada.
17. May, N.<sup>‡</sup>, & **Rao, V.N.V.** (2023, June). *Cooperative learning in an online asynchronous statistics course: Instructor and student perspectives* [Presentation]. 5<sup>th</sup> Annual University of Minnesota Academic Technology SHAREcase, Minneapolis, Minnesota.
16. **Rao, V.N.V.**, Mader, J.<sup>‡</sup>, & Friedlander, E. (2023, June). *Gender Inclusivity from the Perspective of Non-Cisgender Students* [[Lightning Talk](#)]. Consortium for the Advancement of Undergraduate Statistics Education (CAUSE) Research Satellite, State College, Pennsylvania.
15. Foti, S. J., Jiroutek, M. R., Le, L., & **Rao, V.N.V.** (2023, June). *Biostatistical Literacy: What is it, and how can we teach it?* [[Breakout Session](#)]. United States Conference on Teaching Statistics (USCOTS), State College, Pennsylvania.
14. Chen, B., Bartucz, J., Scharber, C., **Rao, V.N.V.**, & DeLiema, D. (2023, April). *Towards a framework for justice-oriented data science education in K-12 schools* [[Paper Presentation](#)]. Annual Meeting of the American Educational Research Association (AERA), Chicago, Illinois.
13. **Rao, V.N.V.** & Carpenter, Z. (2022, October). *Openness and Uncertainty: A forum on the psychology of science* [[Forum](#)]. Seventh Annual Learning Sciences Graduate Student Conference (LSGSC), Bloomington, Indiana.
12. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2022, September). *Graduate students' effect size categorical boundaries* [[Paper Presentation](#)]. The Eleventh International Conference on Teaching Statistics (ICOTS-11), Rosario, Argentina.

11. Marupudi, V., Harsch, R.M., Park, J., Bye, J.K., **Rao, V.N.V.**, & Varma, S. (2022, July). *Use of clustering in human solutions of the traveling salesperson problem* [[Paper Presentation](#)]. Annual Meeting of the Cognitive Science Society, Toronto, Canada.
10. **Rao, V.N.V.**, Bailey, N., Bartucz, J., & Chávez, C. (2022, May). *Social Justice is more than just using critical contexts: A panel on embedding social justice into curricula* [[Breakout Session](#)]. Electronic Conference on Teaching Statistics (eCOTS).
9. Legacy, C., Zieffler, A., delMas, R., & **Rao, V.N.V.** (2022, January). *Data to graphs and back: Secondary teachers' reasoning about the aesthetic mappings that link data and visualizations* [Paper Presentation]. 12<sup>th</sup> International Research Forum on Statistical Reasoning, Thinking, and Literacy (SRTL-12), online.
8. Torrey-White, K.<sup>‡</sup>, Gary, L., Bergson, A., Flynn, J., Driehorst, M., Siekman, R., Prekker, F., Slusher, T., Maynard, K., Paetox, G., **Rao, V.N.V.**, Hendrickx, L., & Bjorklund, A. (2021, November). *A Quality Improvement Project Using Simulation to Improve Nursing Confidence and Skills and Promote Teamwork During High Acuity, Low Occurrence Clinical Events in the Pediatric Intensive Care Unit* [[Quick Shot Presentation](#)]. Annual Meeting of the Pediatric Trauma Society, Baltimore, MD.
7. Society for the Teaching of Psychology's Presidential Task Force on Statistical Literacy, Reasoning, and Thinking\*. (2021, August). *STP's Statistical Literacy, Reasoning, and Thinking Presidential Task Force's recommendations and resources for integrating psychological statistics across the undergraduate curriculum* [[Symposium](#)]. Annual Meeting of the American Psychological Association (APA), San Diego, California.  
 \*16 scholars (chairs, followed by alphabetical order): Hartnett, J. (chair), Freeman, E. (co-chair), Neufeld, G. (co-chair), Aguilera, S.E., Geodert, K., Karazsia, B., Naufel, K., Peters, J., **Rao, V.N.V.**, Reusser, A.Y., Sathy, V., Shaw, R., Soicher, R., Smith, T., Ullman, J., & Woodward, A.
6. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2021, July). *More than just a name: The psychological effects of 'Statistical Significance'* [[Oral presentation](#)]. The 36<sup>th</sup> Annual Psychology Postgraduate Affairs Group Conference (PsyPAG), online.
5. The Link Tank\* (2021, July). *The promise of video-based research methods in psychology* [[Oral presentation](#)]. The 36<sup>th</sup> Annual Psychology Postgraduate Affairs Group (PsyPAG) Conference, online.  
 \*6 scholars (alphabetical order): Baker, J., DeLiema, D., Hufnagle, A., Kim, J., **Rao, V.N.V.**, & Valerie, J.
4. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2021, July). *Categorical perception of p-values* [[Paper presentation](#)]. Annual Meeting of the Cognitive Science Society, Vienna, Austria.
3. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2021, April). *The psychological reality of the learned " $p < 0.05$ " barrier* [[Paper presentation](#)]. Annual Meeting of the American Educational Research Association (AERA), virtual.
2. **Rao, V.N.V.** (2020, November). *A Null Hypothesis Story* [[Lightning Talk](#)]. Fifth Annual Learning Sciences Graduate Student Conference, Madison (LSGSC), Wisconsin.



1. **Rao, V.N.V.** (2019, September). *Towards a framework for context selection in statistics instruction* [[Oral presentation](#)]. Fourth Annual Learning Sciences Graduate Student Conference (LSGSC), Evanston, Illinois.

---

#### CONFERENCE POSTERS (<sup>‡</sup>FORMER STUDENT OR MENTEE)

---

40. Ahasan, M.<sup>‡</sup>, & **Rao, V.N.V.** (2024, December). *Representation matters: Hyper-minoritized students are more likely to relate and engage with content from a demographically similar instructor* [Poster Presentation]. 2024 Teaching to Enhance Research Methods & Statistics in Psychology (PsychTERMS) Conference, online.
39. Marupudi, V., Goyal, S.<sup>‡</sup>, Varma, S., & **Rao, V.N.V.** (2024, November). *Understanding the association between human visual clustering and numerosity estimation* [Poster Presentation]. Annual Meeting of the Psychonomic Society, New York City, USA.
38. Ahasan, M.<sup>‡</sup>, & **Rao, V.N.V.** (2024, October). *Representation matters: Hyper-minoritized students are more likely to relate and engage with content from a demographically similar instructor* [Poster Presentation]. Association of Psychological Science Global Psychological Summit, online.
37. Fulsher, A., **Rao, V.N.V.**, & Bhati, M.<sup>‡</sup> (2024, July). *Reading by sight or sound: Examining undergraduates' expository text comprehension between text modalities* [Poster Presentation]. Annual Meeting of the Society for Text & Discourse, Chicago, IL, USA.
36. **Rao, V.N.V.**, Fulsher, A., & Bye, J.K. (2024, June). *Boundary effects in graduate students' memory of the numerical magnitude of p-values* [Poster Presentation]. Annual Meeting of the Mathematical Cognition and Learning Society, Washington, DC, USA.
35. Goyal, S.<sup>‡</sup>, Marupudi, V., & **Rao, V.N.V.** (2024, June). *Individual Differences in Human Clustering* [Poster Presentation]. Annual Meeting of the Mathematical Cognition and Learning Society, Washington, DC, USA.
34. Marupudi, V., Goyal, S.<sup>‡</sup>, Varma, S., & **Rao, V.N.V.** (2024, June). *Might visual clustering underlie numerosity estimation?* [Poster Presentation]. Annual Meeting of the Mathematical Cognition and Learning Society, Washington, DC, USA.
33. **Rao, V.N.V.** (2024, June). *Setting the stage for statistics learning* [Poster Presentation]. Electronic Conference on Teaching Statistics (eCOTS), online.
32. **Rao, V.N.V.**, Mader, J.<sup>‡</sup>, & Friedlander, E. (2024, May). *A framework for the design of gender inclusive activities* [Poster Presentation]. Annual Meeting of the American Psychological Society (APS), San Francisco, CA, USA.
31. Sriramatha, P.<sup>‡</sup>, Vemuri, A.<sup>‡</sup>, & **Rao, V.N.V.** (2024, April). *The Influence of Personality on Learning Statistics* [Poster Presentation]. University of Illinois 2024 Undergraduate Research Symposium (URS), Urbana, IL, USA.

30. **Rao, V.N.V.**, Mader, J.<sup>‡</sup>, & Friedlander, E. (2023, December). *Gender Inclusive Activities and Datasets for Introductory Level Statistics* [Poster Presentation]. 2023 Teaching to Enhance Research Methods & Statistics in Psychology (PsychTERMS) Conference, online.
29. **Rao, V.N.V.** (2023, December). *Setting the stage for statistics learning* [Poster Presentation]. 2023 Teaching to Enhance Research Methods & Statistics in Psychology (PsychTERMS) Conference, online.
28. Jiroutek, M. R., Le, L., Foti, S. J., & **Rao, V.N.V.** (2023, June). *Using Collaborative Keys to promote active learning and student engagement for in-person or online courses* [Posters and Beyond Presentation]. United States Conference on Teaching Statistics (USCOTS), State College, PA, USA.
27. Friedlander, E., Mader, J. <sup>‡</sup>, & **Rao, V.N.V.** (2023, June). *Gender Inclusive Activities in an Introductory Statistics Class* [Posters and Beyond Presentation]. United States Conference on Teaching Statistics (USCOTS), State College, PA, USA.
26. **Rao, V.N.V.**, Mader, J. <sup>‡</sup>, & Friedlander, E. (2023, June). *Gender Inclusivity from the Perspective of Non-Cisgender Students* [Poster Presentation]. Consortium for the Advancement of Undergraduate Statistics Education (CAUSE) Research Satellite, State College, PA, USA.
25. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2022, August). *Categorical boundaries in graduate students' judgment of effect sizes* [Poster Presentation]. Annual Meeting of the American Psychological Association (APA), Minneapolis, MN, USA.
24. Marupudi, V., Harsch, R. M., Park, J., **Rao, V.N.V.**, Bye, J. K. & Varma, S. (2022, June). *Human use of clustering to solve traveling salesperson problems* [Poster Presentation]. Annual Conference of the Mathematical Cognition and Learning Society (MCLS), Antwerp, Belgium.
23. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2022, May). *Graduate students in the psychological sciences perceive at categorical boundary when processing p-values across the .05 boundary* [Poster Presentation]. Annual Meeting of the American Psychological Society (APS), Chicago, IL, USA.
22. Simpson, M.<sup>‡</sup>, & **Rao, V.N.V.** (2022, April). *Association between Generational Trauma and Progressive Dementia Types* [Poster Presentation]. University of Minnesota Center for Cognitive Sciences Spring Research Day, Minneapolis, MN, USA.
21. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2022, April). *Graduate students in the psychological sciences perceive at categorical boundary when processing p-values across the .05 boundary* [Poster Presentation]. University of Minnesota Center for Cognitive Sciences Spring Research Day, Minneapolis, MN, USA.
20. Ancel, E.E.<sup>‡</sup>, Smith, M.L.<sup>‡</sup>, **Rao, V.N.V.**, & Munson, B. (2022, April). *Does F3-F2 Distance predict transcriptions of preschoolers' /r/ productions?* [Poster Presentation]. University of Minnesota Center for Cognitive Sciences Spring Research Day, Minneapolis, MN, USA.



19. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2022, February). *Graduate students' effect size category boundaries* [[Poster Presentation](#)]. University of Minnesota Department of Educational Psychology Graduate Student Research Day, Minneapolis, MN, USA.
18. **Rao, V.N.V.** (2022, February). *The logic of statistical tests: A historical analysis* [[Poster Presentation](#)]. University of Minnesota Department of Educational Psychology Graduate Student Research Day, Minneapolis, MN, USA.
17. Ancel, E.E.<sup>‡</sup>, Smith, M.L.<sup>‡</sup>, **Rao, V.N.V.**, & Munson, B. (2021, November). *Does F3-F2 Distance predict transcriptions of preschoolers' /r/ productions?* [Poster Presentation]. 181<sup>st</sup> Meeting of the Acoustical Society of America (ASA), Seattle, WA, USA. <https://doi.org/10.1121/10.0007949>
16. **Rao, V.N.V.**, Legacy, C., Brown, J.M., Zieffler, A., & delMas, R. (2021, August). *Data-to-graphs and back: Secondary teachers' reasoning about aesthetic mappings in data visualization* [[Poster presentation](#)]. 12<sup>th</sup> Annual Satellite Conference of the International Association for Statistical Education (IASE), online. <https://iase-web.org/conference/satellite21/>
15. The Link Tank\*. (2021, August). *Teaching statistics students psychology: Using podcasts to integrate context and content* [[Poster presentation](#)]. Annual Meeting of the American Psychological Association (APA), San Diego, CA, USA.  
\*4 scholars (alphabetical order): Koenen, R., **Rao, V.N.V.**, Rubin, N., & Sullivan, M.
14. McNamara, A., Beckman, M., Legacy, C., Zieffler, A., delMas, R.C., & **Rao, V.N.V.** (2021, August). *Integrating computation in statistics: Instructional decisions for Teaching R* [Speed presentation]. Joint Statistical Meetings (JSM), Seattle, WA, USA.
13. Marupudi, V., Harsch, R.M., **Rao, V.N.V.**, Bye, J.K., Park, J., & Varma, S. (2021, July). *The role of clustering in the efficient solution of small Traveling Salesperson Problems* [[Poster presentation](#)]. Annual Meeting of the Cognitive Science Society, Vienna, Austria.
12. **Rao, V.N.V.**, Legacy, C.A., & Zieffler, A. (2021, June). *Students' perspectives on entering a data science career after experiential learning with local community organizations* [[Poster presentation](#)]. United States Conference on Teaching Statistics (USCOTS), online.
11. McNamara, A., Zieffler, A., Beckman, M., Legacy, C., Basner, E.B., delMas, R., & **Rao, V.N.V.** (2021, June). *Computing in the statistics curriculum: Lessons learned from the educational sciences* [[Poster presentation](#)]. United States Conference on Teaching Statistics (USCOTS), online.
10. Running, K., Coddling, R.S., **Rao, V.N.V.**, Goodridge, A., Kromminga, K.R., Will, K., Sullivan, M., & Varma, S. (2021, February). *Determining effective fraction instruction sequences* [[Poster presentation](#)]. Annual Meeting of the National Association of School Psychologists (NASP), Salt Lake City, UT, USA.
9. **Rao, V.N.V.**, Running, K., & Coddling, R.S. (2021, February). *Choosing a statistical model amidst ceiling and floor effects* [[Poster presentation](#)]. Annual Meeting of the National Association of School Psychologists (NASP), Salt Lake City, UT, USA.

8. **Rao, V.N.V.** (2020, September). *Investigating multidimensionality in the Comprehensive Assessment of Outcomes in Statistics* [[Poster presentation](#)]. Annual Meeting of the National Council of Measurement in Education (NCME), San Francisco, CA, USA.
7. Marupudi, V., **Rao, V.N.V.**, Park, J., Harsch, R., Bye, J.K., & Varma, S. (2020, July). *Clustering as a precursor to efficient and near-optimal solution of small instances of the Traveling Salesperson Problem (TSP)* [[Poster presentation](#)]. Annual Meeting of the Cognitive Science Society, Toronto, Canada.
6. **Rao, V.N.V.**, Bye, J.K., & Varma, S. (2020, June). *Mental representation of p-values: Does a categorical perception effect exist?* [[Poster presentation](#)]. University of Minnesota Center for Cognitive Sciences Spring Research Day, Minneapolis, MN, USA.
5. Marupudi, V., **Rao, V.N.V.**, Park, J., Harsch, R., Bye, J.K., & Varma, S. (2020, June). *Clustering as a core mathematical ability for solving graph-theoretic problems such as the Traveling Salesperson Problem (TSP)* [Poster presentation]. Annual Conference of the Mathematical Cognition and Learning Society (MCLS), Dublin, Ireland. (conference cancelled)
4. **Rao, V.N.V.** & Chávez, C. (2020, February). *On the Utilization of the Comprehensive Assessment of Outcomes in Statistics* [[Poster presentation](#)]. University of Minnesota Department of Educational Psychology Graduate Student Research Day, Minneapolis, MN, USA.
3. Marupudi, V., **Rao, V.N.V.**, Park, J., Harsch, R., Bye, J.K., & Varma, S. (2020, February). *The consistency of human clustering* [[Poster presentation](#)]. University of Minnesota Department of Educational Psychology Graduate Student Research Day, Minneapolis, MN, USA.
2. The Link Tank\*. (2020, February). *A cognitive behavioural therapy lesson design for statistics anxiety* [[Poster presentation](#)]. University of Minnesota Department of Educational Psychology Graduate Student Research Day, Minneapolis, MN, USA.  
\*5 scholars (alphabetical order): Baker, J., DeLiema, D, Loiselle, T., **Rao, V.N.V.**, & Yang, W.
1. **Rao, V.N.V.** (2019, May). *Utilizing distributed practice assignments to develop students' statistical literacy in an online class* [[Poster presentation](#)]. United States Conference on Teaching Statistics (USCOTS), State College, PA, USA.

#### CONFERENCE PROCEEDINGS ABSTRACTS

---

4. **Rao, V.N.V.**, & Carpenter, Z. (2022). Openness and Uncertainty: A forum on the psychology of science. In *Proceedings of the 2022 Learning Sciences Graduate Student Conference* (pp. 93-94). Retrieved from <https://www.lsgsc.org/proceedings>.
3. **Rao, V.N.V.**, Legacy, C., Brown, J.M., Zieffler, A., & delMas, R. (2021). Data-to-graphs and back: Secondary teachers' reasoning about aesthetic mappings in data visualization. In R. Helenius & E. Falck (Eds.), *Statistics Education in the Era of Data Science: Proceedings of the Satellite Conference of the International Association for Statistical Education*. [https://iase-web.org/Conference\\_Proceedings.php](https://iase-web.org/Conference_Proceedings.php).

2. Marupudi, V., **Rao, V.N.V.**, Park, J., Harsch, R., Bye, J.K., & Varma, S. (2020). Clustering as a precursor to efficient and near-optimal solution of small instances of the Traveling Salesperson Problem (TSP). In S. Denison, M. Mack, Y. Xu, & B.C. Armstrong (Eds.), *Proceedings of the 42<sup>nd</sup> Annual Conference of the Cognitive Science Society* (p. 1342). <https://cogsci.mindmodeling.org/2020/>.
1. **Rao, V.N.V.** (2019). Towards a framework for the selection of contexts in statistics instruction. In *Proceedings of the 2019 Learning Sciences Graduate Student Conference* (pp. 213-215). Retrieved from <https://www.lsgsc.org/proceedings>.

## OTHER PUBLICATIONS

---

10. **Rao, V.N.V.** (2024, September). Fully Me: How My Religion Inspired a Teaching Intervention (with Empirical Evidence). *E-xcellence in Teaching*. Available at <https://teachpsych.org/E-xcellence-in-Teaching-Blog/>.
9. **Rao, V.N.V.** (2023). ' $P < .05$ ' as a Categorical Boundary in Encoding and Retrieval of Scientific Abstracts. Masters Thesis. University of Minnesota, Minneapolis.
8. **Rao, V.N.V.** (2023). *A Multi-Modal Multiple Descriptive Case Study of Graduate Students' Statistical Thinking in Statistical Tests Seven Months After Completing a Simulation-Based Introductory Level Course*. Doctoral dissertation. University of Minnesota, Minneapolis.
7. Zieffler, A., & Catalysts for Change. (2022). Pensamiento Estadístico: Un Enfoque de Simulación para Modelar la Incertidumbre (4.3<sup>rd</sup> ed., P. Vivas Corrales & **V.N.V. Rao**, Trans.). Minneapolis, MN: Catalyst Press. <http://RaoVNV.github.io/pensamiento-estadistico/>
6. **Rao, V.N.V.** (2022). *Graduate students' thinking in statistical tests: A multi-modal multiple descriptive case study*. Unpublished dissertation prospectus, University of Minnesota, Minneapolis.
5. Neufeld, G., Estrada Aguilera, S., Goedert, K., Peters, J., **Rao, V.N.V.**, Sathy, V., Smith, T., & Hartnett, J. (2022). *Statistical Literacy, Reasoning, and Thinking: Guidelines 2.0 – Presidential Task Force Subcommittee on Introductory Psychology Statistical Literacy*. Society for the Teaching of Psychology. <http://teachpsych.org/page-1863179>
4. **Rao, V.N.V.** (2021, April). From happy hour to co-author: How I found an academic home. *SPARK*. Available at [sparkezone.com](http://sparkezone.com).
3. **Rao, V.N.V.** (2021). *Students' understanding and reasoning of simulation-based significance testing*. [Unpublished preliminary oral exam paper](#), University of Minnesota, Minneapolis.
2. **Rao, V.N.V.** (2020). *Interpretations and uses of the Comprehensive Assessment of Outcomes in Statistics*. [Unpublished preliminary written exam paper](#), University of Minnesota, Minneapolis.

1. **Rao, V.N.V.** (2019). *Investigating multidimensionality in student responses to the Comprehensive Assessment of Outcomes in Statistics*. [Unpublished pre-dissertation paper](#), University of Minnesota, Minneapolis.

## WORKSHOPS

---

2. **Rao, V.N.V.** (2023, May). *Principles of Statistical Inference for Program Evaluation* [Workshop]. United Nations Secretariat, Office of Internal Oversight Services, Inspection and Evaluation Division, online. Sponsored by Dr. Hanife Cakici and Angela Arévalo.
1. **Rao, V.N.V.** (2021, June). *Simulation-based Inference with R for ANOVA Design Experiments* [Workshop]. Psychology Postgraduate Affairs Group, Data Simulation Summer School, online. Sponsored by Dr. Oliver Clark and Jenny Terry.

## SERVICE TO THE DEPARTMENT, COLLEGE, AND UNIVERSITY

---

Department of Statistics, Online Course Development Committee Chair	2024 – 2025
Department of Statistics, Social and Activities Committee	2024 – 2025
Department of Statistics, Undergraduate Research Committee	2024 – 2025
Department of Statistics, Data Science Education Committee	2024 – 2025
Campus Faculty Senate	2024 – 2026
College of Liberal Arts and Sciences, Committee on Academic Standards	2024 – 2025
Department of Statistics, Online Course Development Committee	2023 – 2024
Department of Statistics, Teaching Assistant Training Committee	2023 – 2024

## SERVICE TO THE FIELD

---

Journal of Statistics and Data Science Education, associate editor	2025 – 2027
Researchers of Statistics Education ( <a href="#">RoSE</a> ) Network, outreach director	2024 – present
NSF DRK12 Panel Reviewer	2024
2024 Electronic Conference on Teaching Statistics, program committee	2023 – 2024
UIUC Statistics Teaching and Learning Research Lab, founder and director	2023 – present
Researchers of Statistics Education ( <a href="#">RoSE</a> ) Network, deputy director	2022 – 2023
American Educational Research Association, annual conference reviewer	<a href="#">2021</a> – 2022
Society for the Teaching of Psychology, Presidential Task Force on Statistical Literacy, Reasoning, and Thinking, task force member	<a href="#">2021</a>
Statistics Education – Engagement and Development for Students, founder	2020 – present
CAUSE Undergraduate Statistics PROject Competition, judge	<a href="#">2020</a> – 2024
AP Statistics Exam, reader	2020
Washington Statistical Society, poster competition judge	<a href="#">2014</a>
American Society for Testing and Materials, subcommittee E11.10 & E11.30	2011 – 2013

## SERVICE TO THE COMMUNITY

---

The Link Tank (UMN), founder	<a href="#">2019 – 2022</a>
Council of Graduate Students (COGS) Community Building Grant (\$300)	2022
Council of Graduate Students (COGS) Community Building Grant (\$120)	2020
QME Brown Bag, founder	2018 – 2021
Council of Graduate Students, Educational Psychology student representative	2018 – 2019
Pi Mu Epsilon Illinois Alpha Chapter, chapter president	<a href="#">2007</a> – 2008
Pi Mu Epsilon Illinois Alpha Chapter, chapter vice president	2006 – 2007

## **JOURNAL PEER REVIEWS**

---

ZDM – Mathematics Education (1 paper)	2024
Cognition and Instruction (1 paper)	2023
Journal of Statistics and Data Science Education (10 papers)	2021 – present
Statistics Education Research Journal (6 papers)	2021 – present
Technology Innovations in Statistics Education (1 paper)	2021 – present

## **UNDERGRADUATE STUDENT RESEARCH ASSISTANTS / MENTEES**

---

Madeline Hunt & Mia Petrie – Building a Modern Assessment for Statistical Literacy	2024 – 2025
Bhuvan Kala, Julianna Drew, & Sanjana Gongati – Harnessing GPT Technologies to Develop Students’ Statistical and Computational Thinking	2024 – 2025
Daniel Hogan – Mind Wandering when Learning Statistics	2024
Priyadharshini Sriramatha & Aparajita Vemuri – The Influence of Personality on Learning Statistics	2024
Vishnu Sadhu – Why Do People Purchase Life Insurance?	2023
Shubh Goyal – Individuals Differences in Human Clustering	2023

## **GRADUATE STUDENT RESEARCH ASSISTANTS / MENTEES**

---

Amos Jeng – Harnessing GPT Technologies to Develop Students’ Statistical and Computational Thinking	2024 – 2025
Maisha Ahasan – Teacher-Student Racial Congruency and Students’ Sense of Belonging	2024

## **HONORS, AWARDS, AND FELLOWSHIPS**

---

Quantitative Methods in Education Graduate Student Research Award, \$100	2023
University of Minnesota Graduate School Excellence in Teaching Award, \$500	2023
Quantitative Methods in Education Graduate Student Teaching Award, \$100	2022
UMN Thank-a-Teacher Program, recipient of 14 letters	2020 – 2022
Best Presentation, 36th Annual PsyPAG Conference	2021
Cognitive Science Society Disciplinary Diversity & Integration Award, \$1,000	<a href="#">2021</a>

Quantitative Methods in Education Graduate Student Leadership Award, \$100	<a href="#">2019</a>
CEHD Graduate Student Fellowship, \$25,000	<a href="#">2018 – 2019</a>
Russell W Burris Memorial Fellowship in Educational Psychology, \$5,000	<a href="#">2018 – 2019</a>
Outstanding Group Performance in Data Dissemination, HRSA	2015
Outstanding Group Performance in Communications Innovations, HRSA	2015
Data Request Process Improvement, HRSA, \$1,000	2015
Customer Service Process Improvement, HRSA, \$1,000	2014
Excellence in Quantitative Analysis, HRSA, \$1,000	2014
Excellence in Innovative Analyses, US Census Bureau, \$1,000	2011
Data Quality Process Improvement, US Census Bureau, \$500	2010
<i>Census2010</i> Operations Management, US Census Bureau, \$500	2010

## TEACHING EXPERIENCE

---

### University of Illinois, Urbana, IL

STAT 100 – Statistics [Online] (481 students)	2024 – Fall
STAT 100 – Statistics [In-Person] (622 students)	2024 – Fall
STAT 390 – Individual Study (10 students)	2024 – Fall
STAT 100 – Statistics [Online] (108 students)	2024 – Summer
STAT 390 – Individual Study (10 students)	2024 – Spring
STAT 100 – Statistics [In-Person] (598 students)	2024 – Spring
STAT 100 – Statistics [In-Person] (441 students)	2024 – Spring
STAT 100 – Statistics [In-Person] (608 students)	2023 – Fall
STAT 100 – Statistics [In-Person] (437 students)	2023 – Fall

### University of Minnesota, Minneapolis, MN

EPSY 5621 – Introductory Statistical Methods [Online] (39 students)	2022 – Summer
EPSY 3264 – Basic and Applied Statistics [In-Person] (45 students)	2022 – Spring
EPSY 5621 – Introductory Statistical Methods [In-Person] (18 students)	2021 – Fall
EPSY 3264 – Basic and Applied Statistics [In-Person] (45 students)	2021 – Fall
EPSY 5621 – Introductory Statistical Methods [Online] (21 students)	2021 – Spring
EPSY 5621 – Introductory Statistical Methods [Remote] (19 students)	2020 – Fall
EPSY 5621 – Introductory Statistical Methods [Online] (38 students)	2020 – Spring
EPSY 5621 – Introductory Statistical Methods [Online] (31 students)	2019 – Fall

### George Washington University, Washington, DC

HSCI 2117 – Introduction to Statistics [Online] (6 students)	2024 – Summer
HSCI 2117 – Introduction to Statistics [Online] (13 students)	2023 – Summer
HSCI 2117 – Introduction to Statistics [Online] (14 students)	2023 – Spring
HSCI 3117 – Principles of Biostatistics [Online] (8 students)	2023 – Spring
HSCI 2117 – Introduction to Statistics [Online] (6 students)	2022 – Summer
HSCI 2117 – Introduction to Statistics [Online] (15 students)	2022 – Spring
HSCI 2117 – Principles of Biostatistics [Online] (11 students)	2022 – Spring
HSCI 2117 – Introduction to Statistics [Online] (19 students)	2021 – Fall
HSCI 2117 – Introduction to Statistics [Online] (18 students)	2021 – Summer
HSCI 2117 – Introduction to Statistics [Online] (20 students)	2021 – Spring



HSCI 2117 – Introduction to Statistics [Online] (16 students)	2020 – Fall
HSCI 3117 – Principles of Biostatistics [Online] (20 students)	2020 – Summer
HSCI 2117 – Introduction to Statistics [Online] (20 students)	2020 – Summer
HSCI 2117 – Introduction to Statistics [Online] (16 students)	2020 – Spring
HSCI 3117 – Principles of Biostatistics [Online] (20 students)	2020 – Spring
HSCI 2117 – Introduction to Statistics [Online] (16 students)	2019 – Fall
HSCI 3117 – Principles of Biostatistics [Online] (20 students)	2019 – Summer
HSCI 2117 – Introduction to Statistics [Online] (17 students)	2019 – Summer
HSCI 2117 – Introduction to Statistics [Online] (29 students)	2019 – Spring
HSCI 3117 – Principles of Biostatistics [Online] (24 students)	2019 – Spring
HSCI 2117 – Introduction to Statistics [Online] (20 students)	2018 – Fall
HSCI 3117 – Principles of Biostatistics [Online] (20 students)	2018 – Fall
HSCI 2117 – Introduction to Statistics [Online] (18 students)	2018 – Summer
HSCI 2117 – Introduction to Statistics [Online] (19 students)	2018 – Summer
HSCI 2117 – Introduction to Statistics [Online] (16 students)	2018 – Spring
HSCI 2117 – Introduction to Statistics [Online] (32 students)	2018 – Spring
HSCI 3117 – Principles of Biostatistics [Online] (7 students)	2017 – Fall
HSCI 2117 – Introduction to Statistics [Online] (13 students)	2017 – Summer
HSCI 2117 – Introduction to Statistics [Online] (25 students)	2017 – Summer
HSCI 2117 – Introduction to Statistics [Online] (28 students)	2017 – Spring
HSCI 2117 – Introduction to Statistics [Online] (24 students)	2016 – Fall
HSCI 2117 – Introduction to Statistics [Online] (18 students)	2016 – Summer
HSCI 2117 – Introduction to Statistics [Online] (18 students)	2016 – Spring