

V.N. Vimal Rao

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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
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.
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 11th 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 ([‡]FORMER STUDENT OR MENTEE)

1. May, N.[‡], & **Rao, V.N.V.** (under review). *Achieving promotive interactions in online courses*.

PUBLICATIONS IN PREPARATION ([‡]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.

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 ([‡]FORMER STUDENT OR MENTEE)

19. May, N.[‡], & **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.[‡], & Friedlander, E. (2023, July). *A framework for the design of gender inclusive activities* [Paper Presentation]. 13th Annual Satellite Conference of the International Association for Statistical Education (IASE), Toronto, Ontario, Canada.
17. May, N.[‡], & **Rao, V.N.V.** (2023, June). *Cooperative learning in an online asynchronous statistics course: Instructor and student perspectives* [Presentation]. 5th Annual University of Minnesota Academic Technology SHAREcase, Minneapolis, Minnesota.
16. **Rao, V.N.V.**, Mader, J.[‡], & 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]. 12th International Research Forum on Statistical Reasoning, Thinking, and Literacy (SRTL-12), online.
8. Torrey-White, K.[‡], 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 36th 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 36th 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.

39. Marupudi, V., Goyal, S.[‡], 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. [‡], & **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.[‡] (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.[‡], 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.[‡], 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.[‡], & 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.[‡], Vemuri, A.[‡], & **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.[‡], & Friedlander, E. (2023, December). *Gender Inclusive Activities and Datasets for Introductory Level Statistics* [Poster Presentation]. Teaching to Enhance Research Methods & Statistics in Psychology (PsychTERMS) 2023 Virtual Conference, online.
29. **Rao, V.N.V.** (2023, December). *Setting the stage for statistics learning* [Poster Presentation]. Teaching to Enhance Research Methods & Statistics in Psychology (PsychTERMS) 2023 Virtual 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. [‡], & **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. [‡], & 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. [‡], & **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. [‡], Smith, M.L. [‡], **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.[‡], Smith, M.L.[‡], **Rao, V.N.V.**, & Munson, B. (2021, November). *Does F3-F2 Distance predict transcriptions of preschoolers' /r/ productions?* [Poster Presentation]. 181st 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]. 12th 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, Loisselle, 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.
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 42nd 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* (4.3rd 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 sparkezine.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 (RoSE) 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 (RoSE) Network, deputy director	2022 – 2023
American Educational Research Association, annual conference reviewer	2021 – 2022
Society for the Teaching of Psychology, Presidential Task Force on Statistical Literacy, Reasoning, and Thinking, task force member	2021
Statistics Education – Engagement and Development for Students, founder	2020 – present
CAUSE Undergraduate Statistics PROject Competition, judge	2020 – 2024
AP Statistics Exam, reader	2020
Washington Statistical Society, poster competition judge	2014
American Society for Testing and Materials, subcommittee E11.10 & E11.30	2011 – 2013

SERVICE TO THE COMMUNITY

The Link Tank (UMN), founder	2019 – 2022
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	2007 – 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 Sriramlatha & 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	2021
Quantitative Methods in Education Graduate Student Leadership Award, \$100	2019
CEHD Graduate Student Fellowship, \$25,000	2018 – 2019
Russell W Burris Memorial Fellowship in Educational Psychology, \$5,000	2018 – 2019
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

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