

Curriculum Vitae

Cheng Liu, Ph.D.

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Higher Education

University of Notre Dame	Ph.D. in Statistics	2023
University of Illinois Urbana-Champaign	Ph.D. in Physics	2011
University of Science and Technology of China	B.S. in Physics	2004

Academic Appointments

2025–Present: Assistant Professor, Dept. of Psychology, University of Notre Dame
2025: Research Associate Professor, Lucy Family Institute, University of Notre Dame
2021–2025: Research Assistant Professor, Lucy Family Institute, University of Notre Dame
2017–2025: Lead Data Scientist, Center for Social Science Research, University of Notre Dame
2015–2021: Research Assistant Professor, Dept. of Psychology, University of Notre Dame
2015–2020: Computational Scientist, Center for Research Computing, University of Notre Dame
2011–2015: Research Programmer, Center for Research Computing, University of Notre Dame
2010: Lab Instructor, Dept. of Physics, University of Illinois Urbana-Champaign
2004–2009: Research Assistant, Dept. of Physics, University of Illinois Urbana-Champaign

Scholarships and Fellowships

2000 – 2003: Academic Merit Scholarship for four consecutive years, University of Science and Technology of China

Awards

2023: Presidential Team Irish Awards for Global Education-Notre Dame Partnership with the Global South, University of Notre Dame
2022: Runner up, 1st Source Bank Commercialization Award
2022: Infrastructure & Services Award by Lucy Family Institute, University of Notre Dame
2015: Presidential Team Irish Awards for the Center for Research Computing, University of Notre Dame
2010: List of Teachers Ranked as Excellent by Their Students, University of Illinois
2008: Outstanding Presentation Award, The 21st CMB Research Symposium
2004: Outstanding College Graduate Award of Anhui Province, China

Publications

†: Current/Former Student; ^U: Undergraduate Student; ^P: Postdoc *: Corresponding Author.

1. Pei, B., Cheng, Y., & **Liu, C.** (2025). Balancing Act: Early, Fair, and Accurate Identification of At-risk Students. *Journal of Learning Analytics*, 12(3). <https://doi.org/10.18608/jla.2025.8761>
2. McClure, K., Ammerman, B. A., **Liu, C.**, Blacutt, M., O'Brien, C., & Jacobucci, R. (2025). Initial Development of a Multidimensional Computerized Adaptive Test for Intensive Longitudinal

- Assessment of Suicide Risk: Development and Usability Study. *JMIR formative research*, 9, e76544. <https://doi.org/10.2196/76544>
3. D'Agostino, T. J., **Liu, C.**, Soares, F., Conaghan, B., Brunette, T., Reddy Nakamura, P., Donovan, C., & Pentimonti, J. (2025). Seeing emerging comprehenders: Refining reading comprehension assessment in international contexts. *International Journal of Educational Development*, 117. <https://doi.org/10.1016/j.ijedudev.2025.103373>
 4. Soares, F., **Liu, C.**, D'Agostino, T. J., Nakamura, P., & Freeman, C. (2025). Unveiling the learning crisis: Understanding the reading comprehension challenges in multilingual contexts. *Comparative Education Review*. <https://doi.org/10.1086/736421>
 5. Ober, T. M., Cheng, Y., Carter, M. F., & **Liu, C.** (2024). Leveraging performance and feedback-seeking indicators from a digital learning platform for early prediction of students' learning outcomes. *Journal of Computer Assisted Learning*, 40(1). <https://doi.org/10.1111/jcal.12870>
 6. Setzer, C., Cheng, Y., & **Liu, C.** (2023). Decision accuracy of compensatory composite test scores. *Journal of Educational Measurement*, 60(3). <https://doi.org/10.1111/jedm.12357>
 7. Ober, T. M., Cheng, Y., Carter, M. F., & **Liu, C.** (2023). Disruptiveness of COVID-19: Differences in course engagement, self-appraisal, and learning. *Aera Open*, 9, 23328584231177967
 8. Ober, T. M., Lu, Y., Blacklock, C. B., **Liu, C.**, & Cheng, Y. (2023). Development and Validation of a Cognitive Load Measure for General Educational Settings. *Journal of Psychoeducational Assessment*, 41(6). <https://doi.org/10.1177/07342829231169171>
 9. Ober, T., **Liu, C.**, & Cheng, Y. (2023) Development, validation, and evidence of measurement Invariance of a Shortened Measure of Trait Test Anxiety. *European Journal of Psychological Assessment*, 40(3). <https://doi.org/10.1027/1015-5759/a000761>
 10. Lu, Y., Ober, T. M., **Liu, C.**, & Cheng, Y. (2022). Application of neighborhood components analysis to process and survey data to predict student learning of statistics. *2022 International Conference on Advanced Learning Technologies (ICALT)*. 147-151. doi:10.1109/ICALT55010.2022.00051
 11. Ober, T. M., Brodersen, A., Rebouças-Ju, D., Hong, M., **Liu, C.**, & Cheng, Y. (2022). Math attitudes and engagement-related behaviors: Direct and indirect effects on proficiency in high and low-stakes tests of statistics knowledge. *Journal for STEM Education Research*, 5(3). <https://doi.org/10.1007/s41979-022-00076-4>
 12. Ober, T. M., Hong, M., Carter, M., Brodersen, S. A., Rebouças, D. A., **Liu, C.**, & Cheng, Y. (2022). Are high school students accurate in predicting their AP exam scores? *Assessment in Education: Principles, Policy & Practice*, 29(1), 27–50. <https://doi.org/10.1080/0969594X.2022.2037508>
 13. Ober, T. M., Hong, M., Rebouças, D. A., Carter, M., **Liu, C.**, & Cheng, Y. (2021). Linking Self-report and Process Data to Performance across Different Assessment Types. *Computers & Education*, 167 (2021) 104188. <https://doi.org/10.1016/j.compedu.2021.104188>
 14. **Liu, C.**, Han, K. T., & Li, J. (2019). Compromised item detection for computerized adaptive testing. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2019.00829>
 15. **Liu, C.**, & Cheng Y. (2018). An application of the support vector machine for attribute-by-attribute classification in cognitive diagnosis. *Applied Psychological Measurement*, 42(1), 58-72. <https://doi.org/10.1177/0146621617712246>
 16. Cheng, Y., & **Liu, C.** (2016). A note on the relationship between pass rate and multiple attempts. *Journal of Educational Measurement*, 53(4), 431-447. doi:10.1111/jedm.12124

17. McBurney, P. W., **Liu, C.**, & McMillan, C. (2016). Automated feature discovery via sentence selection and source code summarization. *Journal of Software: Evolution and Process*, 28(2), 120-145. <https://doi.org/10.1002/smr.1768>
18. Schiedler, N. H., **Liu, C.**, Hamby, K. A., Zalom, F. G., & Syed, Z. (2015). Volatile codes: evolution of olfactory signals and reception in drosophila-yeast chemical communication. *Nature Scientific Reports*, 5, 14059. <https://doi.org/10.1038/srep14059>
19. Rodeghero, P., **Liu, C.**, McBurney, P. W., & McMillan, C. (2015). An eye-tracking study of Java programmers and application to source code summarization. *IEEE Transactions on Software Engineering*, 41(11), 1038-1054. <https://doi.org/10.1109/TSE.2015.2442238>
20. Cheng, Y., **Liu, C.**, & Behrens, J. (2015). Standard error of ability estimates and the classification accuracy and consistency of binary decisions in linear and adaptive testing. *Psychometrika*, 80(3), 645-664. <https://doi.org/10.1007/s11336-014-9407-z>
21. Cheng, Y., & **Liu, C.** (2015). The effect of upper and lower asymptotes of IRT models in computerized adaptive testing. *Applied Psychological Measurement*. 39(7), 551-565. <https://doi.org/10.1177/0146621615585850>
22. Sullivan, G. A., **Liu, C.**, and Syed, Z. (2014). Oviposition signals and their neuroethological correlates in the *Culex pipiens* complex. *Infection, Genetics and Evolution*, 28, 735-743. <https://doi.org/10.1016/j.meegid.2014.10.007>
23. Kijewski-Correa, T., Smith, N., Taflanidis, A., Kennedy, A., **Liu, C.**, Krusche, M. & Vardeman, C. (2014). CyberEye: Development of integrated cyber-infrastructure to support rapid hurricane risk assessment. *Journal of Wind Engineering & Industrial Aerodynamics*, 133, 211-224. <https://doi.org/10.1016/j.jweia.2014.06.003>
24. Reidenbach, K. R., Cheng, C., Liu, F., **Liu, C.**, Besansky, N. J. & Syed, Z. (2014). Cuticular differences associated with aridity acclimation in African malaria vectors carrying alternative arrangements of inversion 2La. *Parasites & Vectors*, 7, 176. <https://doi.org/10.1186/1756-3305-7-176>
25. Nabrzyski, J., **Liu, C.**, Vardeman, C., Gesing, S. & Budhatoki, M. (2014). Agriculture data for all: integrated tools for agriculture data integration, analytics and sharing. *BigData 2014, June 27-July 2, 2014, Anchorage, Alaska, US*. <https://doi.org/10.1109/BigData.Congress.2014.117>
26. McBurney, P. W., **Liu, C.**, McMillan, C., & Weninger, T. (2014). Improving topic model source code summarization. *Proc. of 22nd International Conference on Program Comprehension, Early Research Achievements Track (ICPC'14 ERA), June 2-3 2014, Hyderabad, India*. <https://doi.org/10.1145/2597008.2597793>
27. Shi, X., Jung, Y., Lin, C., **Liu, C.**, Wu, C., Cann, I. K. O., & T. Ha. (2012). Quantitative fluorescent labeling of aldehyde-tagged proteins for single-molecule imaging. *Nature Methods*, 9(5), 499-503. <https://doi.org/10.1038/nmeth.1954>
28. Ragunathan, K., **Liu, C.**, & Ha, T. (2012). RecA filament sliding on DNA facilitates homology search. *eLife*, 1, e00067. *Pubmed ID: 23240082*. <https://doi.org/10.7554/eLife.00067>
29. Cheng, Y., Yuan, K-H., & **Liu, C.** (2012). Comparison of reliability measures under factor analysis and item response theory. *Educational and Psychological Measurement*, 72(1), 52-67. <https://doi.org/10.1177/0013164411407315>
30. **Liu, C.**, McKinney, M. C., Chen, Y. H., Earnest, T. M., Shi, X., Lin, L. J., Ishino, Y., Dahmen, K., Cann, I. K. O., & Ha, T. (2011). Reverse-chaperoning activity of an AAA+ protein, *Biophysical Journal*, 100(5), 1344-1352. <https://doi.org/10.1016/j.bpj.2011.01.057>

31. Zhu, J., **Liu, C.**, & Wang, Z. (2006). Monte-Carlo simulation of a small gamma camera using fibers and YAP scintillation crystal. *ACTA PHOTONICA SINICA*, 35(10), 1497-1500.

Book Chapters

1. Brodersen, A., Carter, M. F., **Liu, C.**, & Cheng, Y. (2020). Collection of process data in web-based assessment systems and its applications to validating non-cognitive constructs. In H. Jiao & R. Lissitz (Eds.), *Enhancing Effective Instruction and Learning Using Assessment Data*. Charlotte, NC: Information Age Publisher

Technology Transfer

1. New Venture Development and Invention Program at Notre Dame invention. The invention is based on the education platform designed and developed through the AP-CAT and iDAP projects. I was heavily involved in its development. Tech ID #20-017 for Computerized adaptive testing with cognitive diagnostic feedback.
2. New Venture Development and Invention Program at Notre Dame invention. The invention is based on the FacultyDB project I developed with Dave Rimes, Office of Academic Mission Support. Tech ID #15-050 for Mission Hire. We already have a licensee (Mission Hire LLC) of the technology.

Invited Lectures and Addresses

1. **Liu, C.** (Dec, 2024). Protect Assessment Quality with Change-point Analysis. *University of Notre Dame*.
2. **Liu, C.** (Jan, 2020). Compromised item detection for testing. *University of Florida*.
3. **Liu, C.** (July, 2019). Compromised item detection for testing. *Invited talk at Goethe-Universität Frankfurt, Frankfurt, Germany*.

Conference Presentations

1. [†]Huang, G., & ***Liu C.** (Nov, 2025). Template Based Automated Item Generation with Large Language Model Assistance. Ideas In Testing. Chicago, IL, November 14, 2025.
2. ^UGuzman Aguirre, M., ^UHanna, D., ^ULee, J., ***Liu, C.**, & ***García-Martínez, A.** (October, 2025). *EmpowerHER: A behavior change intervention to enhance breast cancer education and early detection among Latina women in Indiana, using LLM and ASR-enabled mHealth tools*. The RISE AI Conference. Notre Dame, US, October 6-8, 2025.
3. **Liu, C.**, & Cheng, Y. (July, 2024). Unreliability and historical bias and their relationship to test fairness and equity. International Meeting of the Psychometric Society. Prague, Czech, July 15th-19th, 2024.
4. **Liu, C.**, Han, K. T., & Li, J. (July, 2023). Using response time for compromised item detection. International Society for Data Science and Analytics (ISDSA), Shanghai, China, July 4th-6th, 2023.
5. Ober, T. M., Denner, M., **Liu, C.**, & Cheng, Y. (June, 2022). Comparing Subjective and Objective Estimates of Effort and Performance on Adaptive v. non-Adaptive Computerized Tests of Statistics Knowledge. Paper accepted at the Annual Meeting of International Society of the Learning Sciences, Hiroshima, Japan, June 6th-10th, 2022.

6. **Liu, C.**, Han, K. T., & Li, J. (April, 2022, accepted 2021). Compromised item detection for computer-based testing using response time. Presentation accepted at the Annual Meeting of the National Council on Measurement in Education, San Diego, CA, April 21st–24th, 2022.
7. Ober, T. M., Ying, C., Carter, M. F., & **Liu, C.** (April, 2022, accepted 2021). Differences in course engagement and learning in AP Statistics: Examining the disruptiveness of COVID-19. Roundtable presentation accepted at the Annual Meeting of the American Educational Research Association, San Diego, CA, April 22nd–25th, 2022.
8. Ober, T. M., **Liu, C.**, Lu, Y., & Cheng, Y. (April, 2022, accepted 2021). Adaptive v. non-adaptive test mode effects on effort, test anxiety, and performance. Paper accepted at the Annual Meeting of the National Council on Measurement in Education, San Diego, CA, April 21st–24th, 2022.
9. Ober, T. M., Cheng, Y., **Liu, C.**, & Carter, M. F. (May, 2021). Development of a self-report measure to capture learner’s mental effort and perceived task difficulty. Flash Talk presented at the Association for Psychological Science Meeting, May 26th–September 1st, 2021.
10. Ober, T. M., Hong, M. R., Rebouças-Ju, D., Carter, M. F., **Liu, C.**, & Cheng, Y. (April, 2021). Self-report and process data indicators of engagement: Unique predictors of performance across assessment types. Paper presented at the Annual Meeting of the American Educational Research Association, April 8th–12th, 2021.
11. **Liu, C.**, & Cheng, Y. (September, 2020). AP-CAT: A Comprehensive, Adaptive Web-Based Assessment Platform with Diagnostic Features for AP Statistics. *Innovations in Testing 2020. San Diego, CA.*
12. **Liu, C.**, Han, K. T., & Li, J. (September, 2020). Compromised item detection for computerized adaptive testing. *Innovations in Testing 2020. San Diego, CA.*
13. **Liu, C.**, & Li, J. (April, 2017). Compromised item detection for computerized adaptive testing. *Annual Meeting of National Council for Measurement in Education. San Antonio, TX.*
14. Cheng, Y., & **Liu, C.** (April, 2016). The relationship between pass rate and multiple attempts on a test. *Annual Meeting of National Council for Measurement in Education, Washington DC.*
15. Cheng, Y., & **Liu, C.** (Nov, 2015). Classification accuracy of a test battery under multiple decision rules. *Ideas in Testing Seminar, Chicago, IL.*
16. **Liu, C.**, & Cheng, Y. (July, 2015). Cognitive diagnostic assessments using support vector machine—a simulation study. *2015 International Meeting of Psychometric Society, Beijing, China.*
17. **Liu, C.**, & Cheng, Y. (April, 2015). The use of support vector machine in cognitive diagnostic assessments. *2015 NCME annual Meeting, Chicago, IL.*
18. Cheng, Y., & **Liu, C.** (April, 2013). *Detection of aberrant responses in survey data in the presence of calibration error.* Paper presented at the 75th annual meeting of the National Council of Measurement in Education, San Francisco, CA.
19. Cheng, Y., & **Liu, C.** (April, 2012). *Conceptual differences between two IRT-based decision making approaches in testing.* Paper presented at the 74th annual meeting of the National Council of Measurement in Education, Vancouver, Canada.
20. Cheng, Y., & **Liu, C.** (July, 2011). *Estimation of classification accuracy and consistency under item response theory models.* The 2011 International Meeting of Psychometric Society, Hong Kong.
21. **Liu, C.** (Oct, 2010). *Answering biological questions with computational and physics methods.* Presentation at Wolfram Research, Champaign, IL.

22. **Liu, C.**, Shi, X., Chen, Y. H., McKinney, M. C., Cann, I. K.O., & Ha, T. (2008). *Direct observation of sliding clamp dynamics during loading and polymerization*. Paper presented at the 21st Annual Cell & Molecular Biology/Molecular Biophysics Research Symposium, Champaign, IL.
23. McKinney, M. C., **Liu, C.**, Chen, Y. H., Cann, I. K. O., & Ha, T. (2007). *Active assembly of replication clamp by an archaeal clamp loader of novel stoichiometry*. Paper presented at the 51st annual meeting at the Biophysical Society, Baltimore, MD.

Other Research Products

1. [†]Huang, G., & ***Liu C.** (2025-2026). A web platform MA-IG (<https://multi-agent.crc.nd.edu/>) for Automated Item Generation given existing expert provided item templates.
2. **Liu, C.**, McClure, K., Ammerman, B., & Jacobucci, R. (2024-2025). A web platform CAT-SRP (<https://cat-srp.crc.nd.edu/>) for Computerized Adaptive Test for Suicide Risk Pathways (CAT-SRP) study.
3. **Liu, C.**, & Cheng Y. (2021-2024). iDAP going on development with new features based on feedback from students and teachers.
4. Filonczuk, A., **Liu, C.**, & Cheng, Y. (2021). A R package named “RobustIRT” (<https://github.com/cliu7/RobustIRT>) for robust IRT model fit.
5. **Liu, C.**, & Cheng, Y. (2021). iDAP v2.0 published on-line. The new platform provides support of multiple subject domains, new diagnostic features, a new assignment type with time limit, improved student testing interface with a clock, improved teacher report page with a better navigation design, new item bank with more items for both AP and non-AP statistics, new item calibrations and new learning materials.
6. **Liu, C.**, & Cheng, Y. (2020). AP-CAT OPEN published on-line to help the students better prepare the AP statistics exam post COVID-19. The new platform allows public registration and use and offers off-the-shelf, pre-calibrated practice tests.
7. **Liu, C.**, Ober, T. M., & Cheng, Y. (2020). A test mode research module developed and implemented to examine the effect of computer-based test on test anxiety and test performance. The module is supported by the internal grants we received from IEI and ISLA at University of Notre Dame.
8. **Liu, C.**, & Cheng, Y. (2020). An iDAP assessment framework published on-line. The platform is the core development supported by the IES grant to facilitate the high school statistics education.
9. **Liu, C.**, & Cheng, Y. (2020). An item-banking framework with learning module published on-line. The platform allows teachers and other content experts to create, review, and edit statistics questions. This greatly facilitates item development and curation. The platform supports two item types: multiple choice and fill-in-the-blank.
10. **Liu, C.**, & Cheng, Y. (2019). An asynchronized survey collection module development and implementation to the AP-CAT framework. The new module enhanced the research capability of the framework by allowing researchers to embed short pop-up surveys before or after assignment start/completion.
11. **Liu, C.**, & Cheng, Y. (2019). An asynchronized user interface development and implementation to the AP-CAT framework. The new asynchronized infrastructure design enables large user behavior data collection without interrupting the users’ normal operations (so called stealth data collection).

12. **Liu, C., & Cheng, Y.** (2018). A computer Adaptive Testing module development and implementation to the AP-CAT framework.
13. **Liu, C., & Cheng, Y.** (2017). An AP-CAT framework published for on-line assessment research. The on-line platform is for high-school education of AP statistics data collection.

Grants and Sponsored Programs

Funded:

PI. 2025-2026. “Emerging Pathways for Next Generation STEM Education: Applications of Artificial Intelligence and Quantum Computing for Cognitive Diagnosis”. *Franco Large Social Sciences Research Grant, University of Notre Dame* \$20,000

Co-PI (PI of ND). 2025-2026. “Design a Just-In-Time Formative Assessment Algorithm for an Adaptive Education Platform”. *National Science Foundation, Small Business Technology Transfer Phase I Programs (SBIR/STTR Phase I)* \$304,823

Interdisciplinary Collaborator. (2025-2026). “Social Health Dynamics Collaborative Lab”. (PIs: Dr. Molly Copeland and Dr. Ryan Carpenter). *ISLA’s Research Innovation Collaborative Grant, University of Notre Dame.* \$40,000

Senior Personnel. 2024-2025. “Navigating a Workforce Future Impacted by Artificial Intelligence (AI): Understanding Skill Demand related to AI” (PI: Ying Cheng) Institute for Scholarship in the Liberal Arts (ISLA), University of Notre Dame \$19,238

Senior Personnel. 2024. “#GOALS (Go Out and Love Science) Program Assessment”. (PI: Sugana Chawla) *Ascension Foundation for Health Equity* \$286,168

Senior Personnel. 2022-2023. “Trustworthy AI Lab for Education (TALE).” (PI: Dr. Ying Cheng). *Flip the Script Grant Program award, university of Notre Dame* \$15,000

Senior Personnel. 2021-2026. “People with Hope to Bring: Instilling Authentic Excellence for a Campus Culture of Well-Being, Resilience, and Restoration.” (PI: Erin Hoffmann Harding). *Lilly Endowment, Inc.* \$2,500,000

Co-PI. 2020-2022. Testing Experiences of Students and Instructors during COVID-19: Issues of Equity, Validity, and Mode Effects of Online and Remote Testing. (PI: Dr. Teresa Ober) *Spencer Foundation.* \$50,000

Co-PI. 2019-2023. “Statistical Quality Control of Low-Stakes Survey and Assessment Data” (PI: Dr. Ying Cheng). *National Science Foundation.* \$331,480

Co-PI. 2018-2024. “Intelligent Diagnostic Assessment Platform (i-DAP) for High School Statistics Education” (PI: Dr. Ying Cheng). *Institute of Education Sciences.* \$1,399,950

Co-PI. 2020. “Effects of Test Mode and Test Anxiety among Underrepresented Students in STEM.” (PI: Dr. Ying Cheng). *Institute for Educational Initiatives Seed Grant, University of Notre Dame* \$3,500

Co-PI. 2020. “Effects of Test Mode on Underrepresented Students in STEM.” (PI: Dr. Ying Cheng). *ISLA Large Social Science Grant, University of Notre Dame* \$14,905

PI. 2016. “Hierarchical Deep Learning Modeling for Cognitive Diagnostic Assessment”. *Faculty Research Support Program Initiation Grant award (FRSP), University of Notre Dame* \$9,468

Professional Memberships

American Statistical Association
National Council of Measurement in Education
Association of Test Publishers
Psychometric Society

Professional Services

1. Journal Editing:
 - a. Guest editor for *Frontiers in Psychology* (2022)
 - b. Guest editor for *ACM AI Letters* (2025-2026)
2. Reviewer for Journals:
 - a. *Psychometrika*
 - b. *Frontiers in Psychology*
 - c. *Applied Psychological Measurement*
 - d. *Journal of Educational and Behavioral Statistics*
 - e. *British Journal of Mathematical and Statistical Psychology*
 - f. *The Annals of Applied Statistics*
3. Reviewer for Federal Funding Agencies:
 - a. National Science Foundation (2023)
4. Reviewer for Conferences:
 - a. 2025 RISE AI Conference, Notre Dame, IN (29 submissions)
5. Service for Conferences
 - a. Member of the program committee of the RISE AI Conference. Also serve as the reviewer of submissions, and chair the session for Education and Workforce of the Future (2025).
 - b. Chaired the session for AI and machine learning in educational settings, International Meeting of the Psychometric Society (2024).
 - c. Member of the planning committee of the Trustworthy AI Lab for Education Summit (2023).

- d. Served as the judge of the poster session, and chaired the research presentation session (2023).
6. Student Mentorship
 - a. Dissertation committee member for David Selvaraj (Ph.D. candidate), Department of Population and Quantitative Health Sciences, School of Medicine, Case Western Reserve University (2024).
 - b. Master student mentorship
 - Guanchao Huang, Department of Computer Science and Engineering, University of Notre Dame (2025)
 - c. Undergraduate mentorship
 - Alexis Amoranto, Department of Applied and Computational Mathematics and Statistics, University of Notre Dame (2025).
 - Yingxin Liu, Department of Applied and Computational Mathematics and Statistics & Department of Economics, University of Notre Dame (2025)
 - d. Summer school student mentorship
 - Jingyi Guo, visiting student, University of Science and Technology of China (2025)
 - e. Class project mentorship for Prof. Nitesh Chawla, Department of Computer Science, Notre Dame (2023-2024).
 - f. Mentor a group of graduate students from Case Western Reserve University for the 3rd Coast AI for Health Bowl competition (project name: Type2CWRU, hosted by the Northwestern University, 2023).
 7. Service at the Lucy Family Institute for Data & Society:
 - a. Help to organize and supervise the graduate students for the Lucy's Summer Education and Engagement for Data Science (SEEDS) program (2020-2024).
 - b. Member of the Reappointment & Promotion Committee of the Lucy Family Institute for Data & Society (2023-2024).
 8. Selected Service at the Notre Dame

Computational Scientist/Data Scientist (selected projects)

As a computational scientist/data scientist, I help researcher on campus to reach their research goals, mainly through providing statistical consulting or data analysis:

 - a. Worked with Prof. Ross Jacobucci in Department of Psychology to develop a mental health monitor system with an adaptive time model (2022-2024).
 - b. Collaborated with the team at Keough School's Pulte Institute for Global Development on the RELM project (2022-2024), which aims to measure children's foreign language abilities in Africa. Alongside Dr. Fernanda Soares and Caroline Freeman, I serve as an educational measurement expert, focusing on experimental design and data analytics.
 - c. Serving on the Data Safety and Monitoring Board for the NIH R01 project awarded to Dr. Theodore Beauchaine and Dr. Kristin Valentino, Department of Psychology. The project name is: "Leveraging Noninvasive Transcutaneous Vagus Nerve Stimulation and Smartphone Technology to Reduce Suicidal Behaviors and Suicide Among Highly Vulnerable Adolescents."
 - d. Worked as senior personnel in a large mental health project for Notre Dame students (*Lilly Endowment 2021-2026, ~2.5M with Erin Hoffmann Harding*). My responsibility is to help the experimental design and the data analytics thereafter.

- e. Worked with Prof. Matthew Kloser and Catherine Wagner in the Center for STEM Education to develop python and R packages for E4 wristband data analytics (2022-2023).
- f. Worked with Prof. Paul Perrin's team in Keough School's Pulte Institute for Global Development to develop a web-based dashboard for the sustainable development goals (SDGs) for the state of Indiana (2021-2022). The project is to examine the relationship between the current levels and trends for the indicators, and their corresponding targets.
- g. Participated in the Mental Health Interventions project to help develop a resilience program for ND students. The work is a collaboration with Dr. Christine Caron Gebhardt, Division of Student Affairs.
- h. Designed and developed the methodology for the ND-GAIN's Urban Adaptation Assessment (UAA) measures the risk and readiness of 278 U.S. cities. The project is a collaboration with Dr. Patrick Regan, Environmental Change Initiative (ECI).
- i. Worked on building the automatic methodology workflow for the ND-GAIN Country Index project with Dr. Chen Chen, Environmental Change Initiative (ECI).
- j. Worked on statistical data analysis of cuticular hydrocarbon of mosquitoes for Dr. Zainulabeuddin Syed, Dept. of Biological Sciences.
- k. Designed AI-based model and implementing the model to a Django-based online platform for FacultyDB project with Dave Rimes, Office of Academic *Mission* Support.
- l. Rewrote and optimized an R program for clustering analysis (RCOSA project with Dr. Gitta Lubke, Dept. of Psychology).

Software Development and Support (selected projects)

As a computational scientist, I have hands-on experience of many programming languages, including Python, C++, JAVA, Objective-C/iOS, etc., and research software, such as R, Matlab, Mathematica, Maple, etc. Participated in many research development and data analytics projects on campus:

- a. Participated in the V-Dem project to develop an on-line platform to conceptualizing and measuring democracy. The project uses Django framework. Dr. Michael Coppedge, Dept. of Political Science.
- b. Participated in the CyberEye project. Use C++, Python, Django and WEKA (a data-mining package) to develop web platform for hurricane prediction and damage evaluation. Dr. Tracy Kijewski-Correa, Dept. of Civil and Environmental Engineering and Earth Sciences
- c. Participated in a Java package development using OpenGL to reconstruct 3D architecture image with 3D scanning data and photos.
- d. Worked as a Mobile developer for the Tempest app using Objective-C/iOS, a Shakespeare literature project. Responsible for interface programming, communication with backend database and html template, etc. The product is currently available in Apple store. Dr. Elliott Visconsi, Department of English.
- e. Co-developed the software Molecular Hunter, a C++ & MFC-based software for traditional Total Internal Reflection Fluorescence (TIRF) microscopy setup, University of Illinois at Urbana-Champaign.