

Chun-Yi Chang

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Education

Michigan State University, Ph.D. in Statistics, **GPA: 3.9/4.0** Sep. 2022 - Jul. 2027 (Expected)

- Advisor: Dr. Chih-Li Sung

Michigan State University, M.S. in Applied Statistics, **GPA: 3.9/4.0** Sep. 2020 - May 2022

National Taipei University, B.B.A in Statistics, **GPA: 3.4/4.0** Sep. 2016 - Jun. 2020

Research Interests

Uncertainty quantification, deep Gaussian processes, surrogate modeling, computer experiments, Bayesian optimization, experimental design.

Publications and Manuscripts

Chang, C.-Y. and Sung, C.-L. Efficient Deep Gaussian Process Surrogates via Mini-Batch Latent MAP Estimation. *Manuscript in preparation.*

Chang, C.-Y. and Sung, C.-L. (2026). Deep Intrinsic Coregionalization Multi-Output Gaussian Process Surrogate with Active Learning. *International Journal for Uncertainty Quantification*, 16(4):29–52.

Research Experience

Research Assistant May 2021–Present

Department of Statistics and Probability, Michigan State University

- Introduced the Latent Maximum A Posteriori Deep Gaussian Process (LaM-DGP), replacing posterior sampling of latent representations with mini-batch MAP optimization and scaling inference to datasets with up to 100,000 observations.
- Implemented benchmarking pipelines in R and Python, demonstrating competitive RMSE and CRPS together with improved computational scalability relative to MCMC-Vecchia and variational-inference alternatives.
- Proposed the Deep Intrinsic Coregionalization Multi-Output Gaussian Process (deepICMGP), using hierarchical coregionalization to capture nonlinear dependencies among multiple simulator outputs; the method ranked among the top three of ten benchmark emulators.
- Designed an uncertainty-based active-learning criterion for deepICMGP that selects informative simulator inputs and jointly improves prediction across correlated outputs.

Scientific Intern, IMSI Summer Internship Program May–Aug. 2026

Dr. Wendy Yang Lab, Department of Plant Biology, University of Illinois Urbana-Champaign

- Established a reproducible spatiotemporal framework for modeling soil N₂O emissions across two agricultural field sites by integrating mixed-effects models, residual variograms, and spatiotemporal kriging.
- Built validation pipelines for imputing missing chamber–date measurements and evaluating spatial transfer, achieving held-out predictive R^2 values of 0.71–0.94 across site–season analyses.
- Formulated hot-moment classification models and conducted VARS/IVARS sensitivity analyses to characterize extreme emissions and quantify the influence of environmental drivers.
- Delivered harmonized daily datasets, uncertainty-quantified predictions, diagnostic visualizations, and reproducible R/Quarto workflows for continued use by the sponsoring laboratory.

Invited and Contributed Presentations

Efficient Deep Gaussian Process Surrogates via Mini-Batch Latent MAP Estimation. Nov. 2026

Contributed talk, INFORMS 2026 Annual Meeting, San Francisco, CA.

<i>Efficient Deep Gaussian Process Surrogates via Mini-Batch Latent MAP Estimation.</i>	May 2026
Contributed talk , IMS/ASA Spring Research Conference, Clemson, SC.	
<i>Deep Intrinsic Coregionalization Multi-Output Gaussian Process.</i>	Jun. 2025
Contributed talk , IMS/ASA Spring Research Conference, New York, NY.	
<i>Deep Intrinsic Coregionalization Multi-Output Gaussian Process.</i>	Apr. 2025
Contributed Poster , IMSI Workshop on <i>Kernel Methods in Uncertainty Quantification and Experimental Design</i> .	

Teaching Experience and Mentoring

Teaching Assistant	Sep. 2021–Present
<i>Department of Statistics and Probability, Michigan State University</i>	
- Led recitation sections for <i>STT 200: Statistical Methods</i>, reinforcing statistical concepts through applied examples, collaborative problem solving, and exam review. - Provided grading and written feedback across four undergraduate and graduate courses: STT 464 (Statistics for Biologists), STT 481 (Capstone in Statistics), STT 802 (Statistical Computation), and STT 873 (Statistical Learning and Data Mining). - Selected to mentor an STT 200 (Statistical Methods) Honors project, guiding students through project development, statistical analysis, and presentation of results.	

Honors & Awards

NISS New Researcher Award , National Institute of Statistical Sciences	2026
Student Travel Award , ASA/IMS Spring Research Conference	2026
Dissertation Completion Fellowship , College of Natural Science, Michigan State University	2026
Student Travel Award , ASA/IMS Spring Research Conference	2025
Student Travel Support	2025
<i>IMSI Workshop on Kernel Methods in Uncertainty Quantification and Experimental Design</i>	
Harkness Outstanding Graduate Student Teaching Award , Michigan State University	2023–2024
First Prize, Undergraduate Research Competition , National Taipei University	2019

Academic Service

Outreach 12th Annual MSU Science Festival	Apr. 2024
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Additional Professional Experience

Data Analyst Intern	Jul.–Aug. 2019
<i>Consilium Software Inc. (Pte.) Ltd., Taipei, Taiwan</i>	
- Collaborated on an R-based telemarketing analysis system, identifying relationships between product attributes and sales outcomes. - Built a text-to-speech workflow that reduced processing time by 90% and supported customer-needs analysis.	

Technical Skills

Programming and tools: R, Python, SQL (MySQL), SAS, MATLAB, Quarto.

Statistical methods: Gaussian processes, sequential design, Bayesian Inferences, Bayesian optimization, mixed models, classification, clustering, machine learning, and sensitivity analysis.