

Hsin-Hsiung ‘Bill’ Huang, Ph.D.

Curriculum Vitae

School of Data, Mathematical, and Statistical Sciences | College of Sciences | University of Central
Florida

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Professional Profile

Biography

Dr. Hsin-Hsiung “Bill” Huang is a Professor in Statistics and Data Science at the University of Central Florida and a U.S. citizen of Taiwanese American heritage. He earned his Ph.D. in Statistics from the University of Illinois at Chicago, an M.S. in Statistics from the Georgia Institute of Technology, an M.S. in Mathematics from National Taiwan University, and dual B.A./B.S. degrees in Economics and Mathematics from National Taiwan University.

Research focus

Bayesian ultrahigh-dimensional variable selection; matrix- and tensor-variate regression; clustering, classification, and dimension reduction; statistical learning for complex and large-scale data; spatiotemporal modeling; neuroimaging and positronium lifetime image reconstruction; radiation-based imaging and therapy digital twins; anomaly detection, threat detection; genomic/phenome-wide fine mapping; infectious-disease epidemic intelligence; and transportation/maritime vessel trajectory identification.

International research collaboration

Dr. Huang maintains an active network of research collaborators in the United States and abroad, including co-authors and project partners in Japan, Taiwan, the Netherlands (Utrecht University / TNO), Switzerland, and Poland (positron emission tomography imaging group), in addition to numerous U.S. institutions (UIC, Indiana University, University of Maryland, IBM, AbbVie, and others). This network supports ongoing collaborative publications, preprints, and a contracted book project. In 2026, he is also hosting a visiting Ph.D. student from National Cheng Kung University, Taiwan, under Taiwan's Thousand-Mile Project.

Education

- Ph.D., Statistics (Minor: Biostatistics), University of Illinois at Chicago, May 2014. Dissertation: Information Extraction for Virus Classification and Robust Dimension Reduction. Advisors: Jie Yang, Ph.D., and Stephen S.-T. Yau, Ph.D.
- M.S., Statistics, Georgia Institute of Technology, May 2011.
- M.S., Mathematics, National Taiwan University, January 2007. Advisor: Hung Chen, Ph.D.
- B.A., Economics and B.S., Mathematics, National Taiwan University, June 2004.

Academic Appointments and Administrative Roles

- Full Professor (Tenured), School of Data, Mathematical, and Statistical Sciences, University of Central Florida, 2026–present. Promotion approved by the Provost and President on April 2, 2026.
- Associate Professor (Tenured), Department of Statistics and Data Science, University of Central Florida, August 2020–2026. Tenure approved April 23, 2020.
- Visiting Scholar (Sabbatical), Department of Statistics, Northwestern University, August 2021–December 2021.
- Undergraduate Coordinator, Department of Statistics and Data Science, University of Central Florida, August 2020–August 2021.
- Associate Chair, Department of Statistics and Data Science, University of Central Florida, August 2019–August 2020.
- Assistant Professor, Department of Statistics, University of Central Florida, September 2015–July 2020.
- Visiting Assistant Professor, Department of Statistics, University of Central Florida, September 2014–August 2015.

Honors, Awards, and External Recognition

- UCF Research Incentive Award (RIA), 2026 (\$5,000 salary increment).
- Fulbright Specialist Roster, Statistics and Data Science, 2025–2028.
- Elected Member, International Statistical Institute (ISI), 2025; processed and approved June 14, 2025.
- UCF College of Sciences OSCaR Award, 2025, Outstanding Scholarship, Creative Works, and Research.
- NSF Algorithms for Threat Detection Challenge, Second Place, 2025.
- UCF Office of Research Mentoring Program Award, Spring 2025, mentor for Assistant Professor Suyeon Kang (\$3,000).
- NSF ATD Challenge, First Place, 2023, Best Prediction of GDELT Data Event Counts (student mentoring: Hayden Hampton, Chandra Kundu).
- NSF ATD Challenge, First Place, 2022, Best Ranking of GDELT Event Types (student mentoring: Hayden Hampton, Jongjin Kim).
- NSF ATD Challenge, First Place, 2021, Best Prediction of Traffic Data Anomalies (student mentoring: Qing He, Charles Harrison).
- Outstanding Instruction Award, College of Sciences, UCF, 2024.
- Faculty Center Track Presenter, Summer Faculty Development Institute, UCF, 2024.
- UCF Research Incentive Award (RIA), 2021 (\$5,000 salary increment).
- Outstanding Post-Tenure Review, 2025 (\$5,000 salary increment).
- UCF COS Seed Grant, 2023–2024.
- Overseas Taiwanese Students Award, Taiwan Government, 2013 (\$30,000; top 7 of 400 applicants).

- Kiplinger Fellowship, Georgia Institute of Technology, 2009.
- Hu Duen-Fu Top Graduate Student Award, National Taiwan University, 2006 (Summa Cum Laude, M.S. Mathematics).

Research Funding and Sponsored Activity

Active External Grants and Contracts

Role/status	Project	Sponsor / Period	Amount
PI; Co-PI: Fangzheng Xie; newly funded	SCH: Bayesian Phenotyping and Multilayer Network Inference for Actionable STI Epidemic Intelligence and Dynamics	NIH/NIAID R01 1R01AI206603-01; 09/02/2026– 08/31/2030	Year 1: \$276,113 (\$197,917 direct + \$78,196 indirect); Years 1–4 total \$1,098,191; includes \$67,884 subaward to Indiana University
Co-I; active	Sensorimotor Control of Common-Goal Bimanual Coordination	NIH/NINDS R01 1R01NS133094-01A1; 03/01/2024– 02/28/2029	\$1,802,677 total; 5% credit = \$90,133.85
Senior Personnel; active	Scholarships, Academic, and Social Supports for Low-Income Transfer Students in AI	NSF DUE; 04/15/2024– 03/31/2029	\$2,490,530 total; 2% credit = \$49,810

Active Internal Grants and Research Awards

Role/status	Project or Award	Period	Amount
PI; newly awarded	UCF COS Research Seed Funding: Fast 3D Positronium Lifetime Imaging Reconstruction for Clinical Time-of-Flight PET	Awarded February 2026	\$27,500
Mentor; active	UCF Office of Research Mentoring Program Award (Mentee: Asst. Prof. Suyeon Kang)	02/10/2025– 02/28/2026	\$3,000

Completed External and Internal Funding

- Lockheed Martin, Robust Anomaly Detection for High-Dimensional Missile Simulations (Award AWD00007214; UCF Grant GR111144), PI, 01/01/2026–09/01/2026, \$75,000 (100% credit).
- NSF DMS-2318925, ATD: Efficient and Effective Algorithms for Detection of Anomalies in High-Dimensional Spatiotemporal Data with Large Amounts of Missing Data, PI, 09/01/2023–09/01/2026, CV-credit \$100,000 (award \$389,627).
- UCF COS Seed Grant, Real-time Genome Comparison Approach to Biomedical Big Data, PI, 02/14/2023–02/13/2024, \$29,882 (100% credit).
- NIH R01 1R01AG054621-01, Adaptation of Brain and Body Responses to Perturbations During Gait in Young and Older Adults, Co-I, 09/01/2017–05/31/2022, \$1,494,713 total (3.3% credit = \$49,325.53).
- NSF DMS-1924792, Algorithms for Threat Detection, Lead PI, 09/01/2019–08/31/2023, \$58,247 (100% credit).
- NSF DMS-1924792 supplement, PI, 04/15/2023–08/31/2024, \$9,999 (100% credit).
- DARPA SocialSim Project, Statistician, May–June 2019, \$14,299.34.
- UCF In-House Grant, Real-time Genome Comparison Approach to Biomedical Big Data, PI, 05/01/2016–04/30/2017, \$7,582 (100% credit).

External Proposal Portfolio (Pending)

Three pending NSF proposals totaling \$1,780,361 (documented Huang PI/COS-budget amount \$1,116,977, including NSF 2625723 Huang Budget – COS of \$336,616) and NIH EB040509-01 under CSR review at \$359,420 (Huang PI budget \$296,101); combined pending total \$2,139,781. (The related SCH: Bayesian Phenotyping and Multilayer Network Inference project, formerly tracked here as pending, was awarded as NIH/NIAID R01 1R01AI206603-01 — see Active External Grants and Contracts above.)

Proposal	Role	Status / Date	Amount
NIH EB040509-01: Unified Bayesian Reconstruction of Activity and Positronium Lifetime	PI / Contact PI	Submitted 02/16/2026; under NIH/CSR review	\$359,420
NSF 2612190: NSF TTP-T — Positronium Lifetime Imaging PET Reconstruction and Analytics Platform	PI	Pending; status 01/14/2026	\$494,415
NSF 2609483: Calibrated, Interpretable, and Scalable Statistical Inference for Spatial, Temporal, and Network Structures	PI	Pending; status 12/04/2025	\$285,946
NSF 2625723 / FDT-BioTech PCD-DT (Multi-modal AI for Cognitive Decline Digital Twins)	Co-PI (PI/PD: Laura Brattain)	Pending sponsor review; submitted 05/04/2026	\$1,000,000 total; Huang

			budget \$336,616
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Research Publications and Creative Outputs

Contracted Book Project

Huang HH, Zhang T, Komori O (in preparation). Regularized Low-Rank Models: Theory, Algorithms, and Applications. Chapman & Hall/CRC Press (Taylor & Francis). Contract offer received October 24, 2025; manuscript due August 31, 2026.

Accepted Book Chapter

Scott JM, Huang HH* (2026). Vessel Trajectory Identification. In Advanced Statistical Methods for Transportation Economics and Engineering. World Scientific Europe Ltd. ISBN 9781800619630.

*Corresponding author.

2025–26 Peer-Reviewed and High-Impact Research Outputs

1. Canida T, Ye Z, Wang SH, Huang HH, Pan Y, Liang M, Chen S, Ma T (2026). FM-GPT: Bayesian fine mapping for phenome-wide transcriptome-wide association studies. PLOS Genetics.
2. Scott MJ, Huang HH (2026). Imaging-derived spatiotemporal modeling of landslide counts with noisy Gaussian process random effects. Statistics and Data Science in Imaging, 3(1).
3. Wang SH, Huang HH (2026). A Bayesian Sparse Kronecker Product Decomposition Framework for Tensor Predictors with Mixed-Type Responses: Applications to Neuroimaging Data Mining. Statistical Analysis and Data Mining, 19(4), e70106.
4. Huang HH, Chen YH, Zhang T (2026). Shift-aware sparse Kronecker tensor classification. Statistics and Computing, 36:132.
5. Houlahan KE, et al., Huang HH, et al. (2026). Quantifying rate-limiting genetic variation in breast and ovarian tumorigenesis. EBioMedicine, 125.
6. Han K, Huang HH (2026). Low-Rank Regularization of Global Fréchet Regression Models for Distributional Responses. Statistics and Computing, 36–50.
7. Huang HH, Yu F, Li K, Zhang T (2026). Fréchet Sufficient Dimension Reduction for Metric Space-Valued Data via Distance Covariance. Journal of Computational and Graphical Statistics, 1–25.
8. Koksalmis GH, Soykan B, Brattain LJ, Huang HH (2025). Statistical Learning for Personalized Prediction of Alzheimer's Disease Progression: A Survey. WIREs Computational Statistics.
9. Lu T, Chen C, Huang HH, Kochunov P, Hong E, Chen S (2025). A New Multiple Imputation Method for High-Dimensional Neuroimaging Data. Human Brain Mapping, 46:e70161.
10. Scott JM, Huang HH* (2025). Generalizable Storm Surge Risk Modeling. Mathematics, 13(3), 486.
11. Huang HH, Zhu Z, Booppasiri S, Chen Z, Pang S, Kao CM (2025). A Statistical Reconstruction Algorithm for Positronium Lifetime Imaging. IEEE Trans. Radiation and Plasma Medical Sciences.

12. Wang SH, Bai R, Huang HH* (2025). Two-Step Mixed-Type Multivariate Bayesian Sparse Variable Selection with Shrinkage Priors. *Electronic Journal of Statistics*, 19(1), 397–457.

Selected Peer-Reviewed Publications, 2020–2024 (representative)

- Chen Z, Kao CM, Huang HH, An L (2024). Enhanced Positronium Lifetime Imaging through Two-Component Reconstruction. *Frontiers in Physics*, 12.
- Huang HH, Yu F, Zhang T (2024). Robust Sufficient Dimension Reduction via alpha-Distance Covariance. *Journal of Nonparametric Statistics*.
- Huang HH, Yu F, Fan X, Zhang T (2023). A Framework of Regularized Low-Rank Matrix Models for Regression and Classification. *Statistics and Computing*, 34(10).
- He Q, Huang HH (2023). A Framework of Zero-Inflated Bayesian Negative Binomial Regression Models for Spatiotemporal Data. *J. Statistical Planning and Inference*, 229, 106098.
- Chen CW, Huang HH (2023). Unsupervised Vessel Trajectory Reconstruction. *Frontiers in Applied Mathematics and Statistics*, 9.
- Harrison CW, He Q, Huang HH (2022). Clustering Gene Expressions Using the Table Invitation Prior. *Genes*, 13(11), 2036.
- Huang HH, Yang J (2020). Affine-Transformation Invariant Clustering Models. *J. Statistical Distributions and Applications*, 7(1), 10.
- Huang HH, Zhang T (2020). Robust Discriminant Analysis Using Multi-Directional Projection Pursuit. *Pattern Recognition Letters*, 138, 651–656.

Complete publication list (72+ items, 2005–2026) available on request or via Google Scholar.

Current Preprints, Software, and Manuscripts (selected)

- Uluutku B, Rathod N, Gasparato G, Stephenson K, Rominger A, Shi K, et al. (2026). Voxel-wise Bayesian Estimation for Multi-Population Positronium Lifetime Imaging. arXiv:2608.22205. (with Ph.D. students Uluutku, Gasparato and M.S. student Stephenson)
- Huang HH, Komori O (2026). Bayesian Sparse Mixed-Response Species Distribution Models with Spatial Dependence.
- Huang HH, van Buuren S (submitted 2026). HIMCE: High-dimensional multiple imputation via covariance-mode updating. Submitted to *Journal of Multivariate Analysis* (JMVA-D-26-00258); also on arXiv (submit/7556175).
- Uluutku B, Gasparato G, Das M, Choiński J, Pandey A, Sharma S, Moskal P, Stepień E, Kao CM, Huang HH (2026). A Conjugate Bayesian Framework for Fast 3D Positronium Lifetime Estimation. arXiv:2604.09804.
- Huang HH, Soykan B (2026). Toward Actionable Digital Twins for Radiation-Based Imaging and Therapy. arXiv.
- Chen SC, Zhao S, Huang HH (2025). Robust Sufficient Dimension Reduction — rSDR. R package version 1.0.2.1.

Invited Scholarly Presentations and Seminars, 2025–26

- May 23, 2025. University of Florida, Department of Biostatistics. Invited seminar on neuroimaging research.
- September 3, 2025. Vanderbilt University Medical Center, Biostatistics Seminar Series. Invited seminar.
- September 12, 2025. Marquette University, Dept. of Mathematical and Statistical Sciences. Invited colloquium; honorarium speaker.
- February 23, 2026. UCF Mathematics Colloquium. Invited colloquium.
- March 23, 2026. UCF Big Data Analytics Symposium 2026, Faculty Spotlight speaker, UCF Student Union Pegasus Grand Ballroom.
- April 1, 2026. University of Illinois Chicago. Invited seminar.

Citation Metrics

Google Scholar (updated): 693 total citations (475 since 2021); h-index 16 overall / 13 since 2021; i10-index 22 overall / 18 since 2021.

Instructional Activities, Advising, and Mentorship

Teaching

Met all basic instructional expectations for scheduled class meetings, office hours, timely communication, and grading. Taught STA 5206 (Statistical Analysis), STA 7734 (Statistical Asymptotic Theory for Big Data), and STA 5703 (Data Mining Methodology I, redesigned for the MSDA program with a new three-stage team/group project sequence) during the 2025–26 period, in addition to dissertation, thesis, and doctoral/independent research supervision each semester. Student evaluations were strong: STA 5206 (Summer 2025) received all items rated Excellent; STA 7734 (Fall 2025, 4/5 respondents) earned a 4.67 course/content mean and 4.85 instructor/instruction mean. In Fall 2026, Dr. Huang is teaching STA 5703 Data Mining Methodology I and STA 7722 Statistical Learning Theory.

Graduate Supervision and Student Milestones

Student	Status	Progress / Milestone
Joshua White	Ph.D.; graduated Fall 2025 (2nd Ph.D. advisee)	Completed dissertation defense and UCF doctoral hooding, Fall 2025.
John ‘Mahlon’ Scott	Ph.D. candidate	Storm surge risk, geopolitical-event/anomaly modeling, maritime vessel tracking; multiple coauthored papers.
Yuh-Haur ‘Jackie’ Chen	Ph.D. candidate	M.S. project defense completed April 9, 2026 (sparse Kronecker/tensor classification).
Berkin Uluutku	Ph.D. candidate	M.S. project defense completed April 13, 2026 (3D positronium lifetime reconstruction); coauthor, 2026 voxel-wise Bayesian estimation preprint.

Giuliano Gasparato	Ph.D. candidate	Ph.D. candidacy exam completed April 8, 2026; coauthor, 2026 voxel-wise Bayesian estimation preprint.
Juhwan Park	New Ph.D. student	Joined Fall 2026.
Elizabeth Ruth	New Ph.D. student	Joined Fall 2026.
Katrina Stephenson	M.S. student	Committee participation, Spring 2026; coauthor, 2026 voxel-wise Bayesian estimation preprint.

Dr. Huang currently supervises six Ph.D. students (four candidates, two newly started in Fall 2026) and one M.S. student, and served as major advisor for his second Ph.D. graduate in Fall 2025, including participation in the UCF doctoral commencement hooding ceremony.

Visiting Scholars

- Chin-Chun Chen, Ph.D. student, National Cheng Kung University, Taiwan; hosted as a visiting researcher, 2026, under Taiwan's Thousand-Mile Project.

Additional Thesis/Dissertation Committee Service

- John ‘Mahlon’ Scott — Dissertation Advisory Committee.
- Bethany Hintz — Dissertation defense held March 30, 2026 (cover-scheme methods for nonlinear optimal-control problems in space-flight applications); committee member.
- Kyle Brinker — Fall 2025 thesis/defense scheduling and coordination; committee member.

Service, Governance, and Professional Engagement

Unit / School Service

- Member, Ad Hoc Statistics and Mathematics Merged School Committee, 2025–2026.
- Member, Ad Hoc I/CPE Committee, 2025–2026.
- Member, Bylaws Committee, School of Data, Mathematical, and Statistical Sciences, 2025–2026.
- Member, Annual Evaluation Standards and Procedures (AESP) Committee.
- Member, Equitable Workload Policies Committee.
- Member, Promotion and Tenure Guideline Revision Committee.
- Chair, Graduate Curriculum Committee.
- Member, Graduate Course Overlap/Revision Committee.

College and University Service

- Faculty Senator, UCF Faculty Senate, Fall 2026–present.
- Member, UCF Research Council, Fall 2026–present.
- Member, College Research Committee, College of Sciences.
- Faculty mentor, UCF Office of Research Mentoring Program Award, Spring 2025–2026 (mentee: Asst. Prof. Suyeon Kang).

- Committee member and Faculty Spotlight speaker, UCF Big Data Analytics Symposium 2026, March 23, 2026.

Professional Service

- ASA Florida Chapter Officer / Executive Committee member, 2025–2027.
- ASA Florida Chapter Meeting Committee, 2026 Annual Meeting, Miami, March 6–7, 2026.
- Fulbright Specialist Roster selection, Statistics and Data Science.
- Elected Member, International Statistical Institute (ISI), 2025.
- Peer reviewer: Annals of Statistics, Biometrics, JRSS-B, JRSS-C, Electronic Journal of Statistics, IEEE Transactions on Neural Networks and Learning Systems.
- Associate Editor invitation, Frontiers in Applied Mathematics and Statistics (Statistics and Probability section).
- Co-guest-editor, MDPI Mathematics special issue “High-Dimensional Statistics: New Mathematical Challenges for Big Data”; JMSE special-issue invitation on intelligent maritime systems.

Community Service / Outreach

- Science fair judge, Orlando Science East Campus School, Spring 2026.
- Judge, Oviedo Chinese School Mandarin Chinese speaking competition, Fall 2025.

Research Software and Reproducible Workflows

- rSDR: Robust Sufficient Dimension Reduction. R package version 1.0.2.1 (Chen SC, Zhao S, Huang HH, 2025).
- ZINB-GP: Zero-inflated Negative Binomial Regression with Nearest-neighbor Gaussian Processes (Scott JM, Huang HH).
- MtMBSP: Mixed-type Multivariate Bayesian Model with Shrinkage Priors (Wang SH, Bai R, Huang HH).
- TIP: Bayesian Clustering Using the Table Invitation Prior (Harrison CW, He Q, Huang HH).