

# Hsin-Hsiung 'Bill' Huang

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## Curriculum Vitae

Professor, School of Data, Mathematical, and Statistical Sciences  
University of Central Florida, Orlando, Florida  
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## Education

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### **Ph.D., Statistics (Minor: Biostatistics)**

University of Illinois at Chicago, Chicago, Illinois, May 2014  
Dissertation: Information Extraction for Virus Classification and Robust Dimension Reduction  
Advisors: Professor Jie Yang, Ph.D., and Distinguished Professor Stephen S.-T. Yau, Ph.D.

### **M.S., Statistics**

Georgia Institute of Technology, Atlanta, Georgia, May 2011

### **M.S., Mathematics**

National Taiwan University, Taipei, Taiwan, January 2007  
Advisor: Professor Hung Chen, Ph.D.

### **B.A., Economics and B.S., Mathematics**

National Taiwan University, Taipei, Taiwan, June 2004

## Employment

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### **Professor (Tenured)**

School of Data, Mathematics, and Statistical Sciences, University of Central Florida, August 2020-present  
Provost Approved: 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

## Funding Awarded

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### Active External Grants

#### **Lockheed Martin Project, Spring 2026-Fall 2026**

Algorithms for Anomaly Detection in Simulation Missile Data  
Role: Principal Investigator  
Total amount: \$75,000 (100% credit)

#### **NIH R01 (1R01NS133094-01A1)**

National Institute of Neurological Disorders and Stroke, 03/01/2024-02/28/2029  
Sensorimotor Control of Common-Goal Bimanual Coordination

Role: Co-Investigator

Total amount: \$1,802,677 (5% credit = \$90,133.85)

**NSF DMS Algorithms for Threat Detection (DMS-2318925)**

09/01/2023-08/31/2026

ATD: Efficient and Effective Algorithms for Detection of Anomalies in High-Dimensional Spatiotemporal Data with Large Amounts of Missing Data

Role: Principal Investigator

Total amount: \$100,000 (100% credit)

**NSF DMS Algorithms for Threat Detection Supplement (DMS-1924792)**

04/15/2023-08/31/2024

ATD: Collaborative Research: Real-Time Network Pattern Change Detection

Role: Principal Investigator

Total amount: \$9,999 (100% credit)

**NSF Division of Undergraduate Education - Directorate for STEM Education**

04/15/2024-03/31/2029

Scholarships, Academic, and Social Supports to Provide Low-Income Transfer Students Opportunities for Nurtured Growth in AI

Role: Senior Personnel

Total amount: \$2,490,530 (2% credit = \$49,810)

## Active Internal Grants and Research Awards

**UCF College of Sciences Research Seed Funding Program (2025-2026)**

Awarded February 2026

Fast 3D Positronium Lifetime Imaging Reconstruction for Clinical Time-of-Flight PET

Role: Principal Investigator

Total amount: \$24,800 (Designation number: DN15431)

**UCF Office of Research Mentoring Program Award (Spring 2025)**

02/10/2025-02/28/2026

Mentorship for Junior Faculty on Research, External Proposal Development, and Career Advancement

Role: Mentor

Total amount: \$3,000 (research-related expenditures only)

## Completed Internal Grants

**UCF COS Seed Grant**

02/14/2023-02/13/2024

Real-time Genome Comparison Approach to Biomedical Big Data

Role: Principal Investigator

Total amount: \$29,882 (100% credit)

## Completed or Past External Grants

**NIH R01 (1R01AG054621-01)**

09/01/2017-05/31/2022

Adaptation of Brain and Body Responses to Perturbations During Gait in Young and Older Adults

Role: Co-Investigator

Total amount: \$1,494,713 (3.3% credit = \$49,325.53)

**NSF DMS Algorithms for Threat Detection (DMS-1924792)**

09/01/2019-08/31/2023

Collaborative Research: Real-Time Network Pattern Changes Detection

Role: Lead Principal Investigator

Total amount: \$58,247 (100% credit)

**DARPA SocialSim Project**

May-June 2019

PI: Wingyan Chung, Ph.D.; role: Statistician

Total amount: \$14,299.34 (salary: \$6,792.14; student support: \$7,507.20)

### **UCF In-House Grant**

05/01/2016-04/30/2017

Real-time Genome Comparison Approach to Biomedical Big Data

Role: Principal Investigator

Total amount: \$7,582 (100% credit)

## **Funding Submission Pending**

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### **NSF Division of Computing and Communication Foundations (CCF)**

05/01/2025-04/30/2028

AF: Small: Regularized Low-Rank Tensor Regression with Bayesian Shrinkage Priors and Dimension Reduction

Role: Principal Investigator

Requested amount: \$356,475 (100% credit)

### **NSF Division of Mathematical Sciences (DMS)**

10/01/2025-09/30/2028

Math-DT: Bayesian Real-Time Digital Twins with Transformers for Spatial-Temporal Analysis

PI: Hsin-Hsiung Huang (50% credit)

Co-PIs: Scott William Dillon (10% credit), Bulent Soykan (20% credit), Veeraraghava Hasti (20% credit)

Requested amount: \$964,037

## **Honors and Awards**

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- UCF Research Incentive Award (RIA), 2026
- Fulbright Specialist Roster, 2025-2028
- Elected Member, International Statistical Institute (ISI), 2025
- UCF College of Sciences OSCaR Award (Outstanding Scholarship, Creative Works, and Research), 2025
- NSF ATD Challenge 2025 Second Place
- Spring 2025 UCF Office of Research Mentoring Program Award (Mentoring: Suyeon Kang)
- NSF ATD Challenge 2023 First Place - Best Prediction of GDELT Data Event Counts (Mentoring: Hayden Hampton, Chandra Kundu)
- NSF ATD Challenge 2022 First Place - Best Ranking of GDELT Event Types (Mentoring: Hayden Hampton, Jongjin Kim)
- NSF ATD Challenge 2021 First Place - Best Prediction of Traffic Data Anomalies (Mentoring: Qing He, Charles Harrison)
- Outstanding Instruction Award, College of Sciences, 2024
- Faculty Center Track Presenter, Summer Faculty Development Institute, 2024
- UCF COS Seed Grant, 2023-2024
- UCF Research Incentive Award (RIA), 2021
- Overseas Taiwanese Students Award, Taiwan Government, 2013, \$30,000 (Top 7 of 400 applicants)
- Scholarship Kiplinger Fellowship, Georgia Institute of Technology, 2009
- Hu Duen-Fu Top Graduate Student Award, National Taiwan University, 2006 (Summa Cum Laude, M.S. Mathematics)

## **Travel Awards**

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- UCF College of Sciences Faculty Travel Award: Fall 2015, Fall/Spring 2016, Fall 2017, Fall 2019, Fall 2022, Fall 2023, Spring 2024
- 4th Jagiellonian Symposium on Advances in Particle Physics and Medicine, 2022
- 6th Workshop on Biostatistics and Bioinformatics Presenter, 2018
- University of Florida Statistics Winter Workshop, 2018
- International Conference on Statistical Distributions and Applications, September 2016
- 4th Workshop on Biostatistics and Bioinformatics Presenter, 2015
- Midwest Biopharmaceutical Statistics Workshop Travel Award, 2013, 2014

- Graduate Student Travel Award, University of Illinois at Chicago, 2012, 2013

## Research Publications

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*Peer-reviewed journal articles, book chapters, and proceedings (2020-present). Asterisk (\*) denotes corresponding author where indicated.*

- Houlahan KE, Bihie M, Greatti Y, Contreras JG, Fulop DJ, Lopez G, Williams M, Huang HH, Van Loo P, Boutros PC, Huang KL (2026). Quantifying rate-limiting genetic variation in breast and ovarian tumorigenesis. *EBioMedicine*, 125.
- Han K, Huang HH (2026). Low-rank regularization of global Frechet regression models for distributional responses. *Statistics and Computing*.
- Huang HH, Yu F, Li K, Zhang T (2026). Frechet Sufficient Dimension Reduction for Metric Space-Valued Data via Distance Covariance. *Journal of Computational and Graphical Statistics*, 1-25.
- Koksalmis GH, Soykan B, Brattain LJ, Huang HH (2025). Statistical Learning for Personalized Prediction of Alzheimer's Disease Progression: A Survey of Methods, Data Challenges, and Future Directions. *WIREs Computational Statistics*, 17(3), e70043.
- Lu T, Kochunov P, Chen C, Huang HH, Hong LE, Chen S (2025). A New Multiple Imputation Method for High-Dimensional Neuroimaging Data. *Human Brain Mapping*, 46(5), e70161. DOI: 10.1002/hbm.70161.
- Scott M, Huang HH\* (2025). Generalizable Storm Surge Risk Modeling. *Mathematics*, 13(3), 486. DOI: 10.3390/math13030486.
- Huang HH\*, Zhu Z, Booppasiri S, Chen Z, Pang S, Kao CM (2025). A Statistical Reconstruction Algorithm for Positronium Lifetime Imaging Using Time-of-Flight Positron Emission Tomography. *IEEE Transactions on Radiation and Plasma Medical Sciences*. DOI: 10.1109/TRPMS.2025.3531225.
- 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.
- Chen Z, Kao CM, Huang HH\*, An L\* (2024). Enhanced Positronium Lifetime Imaging through Two-Component Reconstruction in Time-of-Flight Positron Emission Tomography. *Frontiers in Physics - Medical Physics and Imaging*, 12. DOI: 10.3389/fphy.2024.1429344.
- Huang HH\*, Yu F, Zhang T\* (2024). Robust Sufficient Dimension Reduction via alpha-Distance Covariance. *Journal of Nonparametric Statistics*. DOI: 10.1080/10485252.2024.2313137.
- Zhang W, Ma Z, Ho YY, Yang S, Habiger JD, Huang HH, Huang Y (2024). Multi-omics Integrative Analysis for Incomplete Data Using Weighted p-value Adjustment Approaches. *Journal of Agricultural, Biological, and Environmental Statistics*. DOI: 10.1007/s13253-024-00603-3.
- Chen Z, An L, Kao CM, Huang HH (2023). The Properties of the Positronium Lifetime Image Reconstruction Based on Maximum Likelihood Estimation. *Bio-Algorithms and Med-Systems*, 19(1).
- Chen Z, An L, Kao CM, Huang HH (2023). Statistical Properties of the Positronium Lifetime Image Reconstruction. 2023 IEEE Nuclear Science Symposium, Medical Imaging Conference and Room-Temperature Semiconductor Detector Conference.
- 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). DOI: 10.1007/s11222-023-10318-5.
- He Q, Huang HH (2023). A Framework of Zero-Inflated Bayesian Negative Binomial Regression Models for Spatiotemporal Data. *Journal of Statistical Planning and Inference*, 229, 106098.
- Huang HH\*, He Q (2023). Statistical Modeling of *Peromyscus maniculatus* (Deer Mouse) Amounts per Trap with Spatiotemporal Data. *Japanese Journal of Statistics and Data Science*. DOI: 10.1007/s42081-023-00212-3.
- Chen CW, Huang HH (2023). Unsupervised Vessel Trajectory Reconstruction. *Frontiers in Applied Mathematics and Statistics*, 9. DOI: 10.3389/fams.2023.1124091.
- He Q, Harrison CW, Huang HH (2023). Detection of Anomalies in Traffic Flows with Large Amounts of Missing Data. *The New England Journal of Statistics in Data Science*, 1(1), 84-94.
- Yu Z, Yang J, Huang HH (2023). Smoothing Regression and Impact Measures for Accidents of Traffic Flows. *Journal of Applied Statistics*. DOI: 10.1080/02664763.2023.2175799.
- Huang HH, He Q (2023). *Nonlinear Regression Analysis*. International Encyclopedia of Education, Fourth Edition. Elsevier.
- Harrison CW, He Q, Huang HH (2022). Clustering Gene Expressions Using the Table Invitation Prior. *Genes*, 13(11), 2036.
- Fan CW, Drumheller K, Chen IH, Huang HH (2021). College Students' Sleep Difficulty During COVID-19 and Correlated Stressors: A Large-Scale Cross-Sectional Survey Study. *Sleep Epidemiology*, 1, 100004.

- Fan CW, Liu C, Huang HH, Lin CY, Pakpour AH (2021). Weight Stigma Model on Quality of Life Among Children in Hong Kong: A Cross-Sectional Modeling Study. *Frontiers in Psychology*, 12, 629786.
- Fan CW, Huang HH, Case V (2021). Intraprofessional Collaboration in Learning Evidence-Based Practice. *Journal of Occupational Therapy Education*, 5(3), Article 8.
- Huang HH\*, Yang J (2020). Affine-Transformation Invariant Clustering Models. *Journal of 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.
- Huang HH, Condor A, Huang HJ (2020). Classification of EEG Motion Artifact Signals Using Spatial ICA. In *Statistical Modeling in Biomedical Research: Contemporary Topics and Voices in the Field*.

## **Selected Current Preprints and Software**

- Huang HH, Chen YH, Zhang T (2026). Shift-Aware Sparse Kronecker Tensor Classification.
- Scott JM, Huang HH (2025). Maritime Vessel Tracking. arXiv preprint arXiv:2512.11707.
- Xie F, Huang HH (2025). Uncertainty quantification for mixed membership in multilayer networks with degree heterogeneity using Gaussian variational inference. arXiv preprint arXiv:2512.08146.
- Chen SC, Zhao S, Huang HH (2025). Robust Sufficient Dimension Reduction-rSDR. R package version 1.0.2.1.
- Huang HH, Hampton H (2025). Forecasting Geopolitical Events with a Sparse Temporal Fusion Transformer and Gaussian Process Hybrid: A Case Study in Middle Eastern and U.S. Conflict Dynamics. arXiv preprint.
- Wang SH, Huang HH (2025). A Bayesian Sparse Kronecker Product Decomposition Framework for Tensor Predictors with Mixed-Type Responses. arXiv preprint arXiv:2505.13821.
- Huang HH, Chen YH, Zhang T (2025). Cyclic-Shift Sparse Kronecker Tensor Classifier for Signal-Region Detection in Neuroimaging. arXiv preprint arXiv:2505.12113.

## **Earlier Publications (Before 2020)**

- Zhu Z, Huang HH, Pang S (2019). Photon Allocation Strategy in Region-of-Interest Tomographic Imaging. *IEEE Transactions on Computational Imaging*, 6, 125-137. DOI: 10.1109/TCI.2019.2922477.
- Huang HH, Wang Z, Chung W (2019). Efficient Parameter Selection for Support Vector Machines. *Enterprise Information Systems*, 13(6), 916-932. DOI: 10.1080/17517575.2019.1592233.
- Huang HH, Girimurugan SB (2019). Discrete Wavelet Packet Transform Based Discriminant Analysis for Whole Genome Sequences. *Statistical Applications in Genetics and Molecular Biology*, 18(2), 20180045.