

Curriculum Vitae
Hsin-Hsiung Huang

Department of Statistics
College of Science
University of Central Florida
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Education

Ph.D., Statistics

University of Illinois at Chicago, Chicago, Illinois, May, 2014

Dissertation title: Information Extraction for Virus Classification and Robust
Dimension Reduction

Advisor: Jie Yang, Ph.D. and co-advisor: Distinguished Professor Stephen S.-T. Yau, Ph.D.

M.S., Statistics

Georgia Institute of Technology, Atlanta, Georgia, August, 2011

M.S., Mathematics

National Taiwan University, Taipei, Taiwan, January, 2007

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

National Taiwan University, Taipei, Taiwan, June 2004

Employment

Assistant Professor

- Department of Statistics, University of Central Florida, September 2015 – current

Visiting Assistant Professor

- Department of Statistics, University of Central Florida, September 2014 – August 2015

Graduate Instructor

- Department of Mathematics, Statistics, and Computer Science
University of Illinois at Chicago, September 2013 – May 2014

Teaching Assistant

- Department of Mathematics, Statistics, and Computer Science
University of Illinois at Chicago, September 2011 – May 2013
- H. Milton Stewart School of Industrial and Systems Engineering
Georgia Institute of Technology, September 2010 – May 2011
- Department of Mathematics, National Taiwan University, August 2004 - June 2006

Research Assistant

- H. Milton Stewart School of Industrial and Systems Engineering
Georgia Institute of Technology, September 2009 – May 2010
- Institute of Statistics, Academia Sinica, February 2008 – August 2009
- Department of Mathematics, National Taiwan University, August 2006 - January 2007

Grants awarded

1. National Institutes of Health (NIH), Grant number: 1R01AG054621-01

Time period: 09/01/2017 to 05/31/2022

Amount: \$587,116

Proposal title: Adaptation of brain and body responses to perturbations during gait in young and older adults,

Principal Investigator:

Helen Huang, Ph.D. Department of Mechanical and Aerospace Engineering College of Engineering and Computer Science

Role: **Co-Investigator**

Hsin-Hsiung Huang, Ph.D., Department of Statistics, College of Science, University of Central Florida

2. In-House Grant

Time period: 05/01/2016-04/30/2017

Proposal title: Real-time genome comparison approach to biomedical big data

Amount: \$7582

Principal Investigator: Hsin-Hsiung Huang, Ph.D., Department of Statistics, College of Science, University of Central Florida Credit: 100%

Grant Application

Pending

1. NSF Statistics grant

Proposal title: Representative Methods for Matrix-variate Classification and Clustering Models

Role: **Principal Investigator**

Time Period 09/01/2019-08/30/2022

Amount: \$298,398

2. NIH grant

Proposal title: Human-in-the-loop optimization of myoelectric hand-wrist prosthesis using physics-based simulation in virtual reality

Principal Investigator:

Qiushi Fu, Ph.D. Department of Mechanical and Aerospace Engineering College of Engineering and Computer Science

Role: **Co-Investigator**

Time Period 09/01/2019-08/30/2021

Amount: \$363,142

3. National Pork Board

Proposal title: The System of Identifying and Tracking Genetic Variations of the African Swine Fever Virus

Role: Principal Investigator

Time Period 09/01/2019-08/30/2021

Amount: \$132,187

Honors

○ Travel Award

- The 6th Workshop on Biostatistics and Bioinformatics Presenter, 2018
- 2018 UF Stats Winter Workshop
- College of Sciences, University of Central Florida, Fall 2015, Spring 2016, Fall 2016, Spring 2017
- International Conference on Statistical Distributions and Applications, September 2016
- The 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

○ Scholarship

- Overseas Taiwanese Students Award, Taiwan Government, 2013
Funding \$30,000, Ranked the top 7 among 400 applications.
- Scholarship Kiplinger Fellowship, Georgia Institute of Technology, 2009
- Hu Duen-Fu Top Graduate Student Award, National Taiwan University, 2006
Top 1 graduated Master's student in the Department of Mathematics

○ Photo Contest Award

- Princess Cruise Photo Contest Award, 2013. The top 1 of the first season

Research

Peer-Reviewed Journals/Books

1. **Huang HH** and Girimurugan SB. (2019) Discrete Wavelet packet transform based discriminant analysis for genome sequences data. Statistical Applications in Genetics and Molecular Biology. 20180045
2. **Huang HH**, Hao S, Alacorn S, and Yang J. (2018) Comparisons of classification methods for viral genomes and protein families using alignment-free vectorization. Statistical Applications in Genetics and Molecular Biology, 17(4), 20180004.
3. **Huang HH** and Girimurugan SB. (2018) A novel real-time genome comparison method using discrete wavelet transform. Journal of Computational Biology, 25(4), 406-416
4. **Huang HH**, Wang Z, and Chung W. (2017) Efficient parameter selection for SVM: The case of business intelligence categorization, 2017 IEEE International Conference on

Intelligence and Security Informatics (ISI) proceeding, 158-160.

5. **Huang HH** and Yu C. (2016) Clustering DNA sequences using the out-place measure with reduced n-gram. *Journal of Theoretical Biology*, 406, 61-72.
6. **Huang HH**. (2016) Ensemble method of k-mer and natural vector for the phylogenetic analysis of multiple-segmented viruses. *Journal of Theoretical Biology*, 398, 136-144.
7. Lu AT, Austin E, Bonner A, **Huang HH** Cantor RM. (2014) Applications of machine learning and data mining methods to detect associations of rare and common variants with complex traits. *Genet Epidemiol*, 38 Suppl 1:S81-85.
8. **Huang HH**, Yu C, Hernandez T, Zheng H, Yau SC, He RL, Yang J, and Yau SST. (2014) Global Comparison of multiple-segmented Viruses in 12-dimensional Genome Space. *Molecular Phylogenetics and Evolution*, 81, 29-36.
9. **Huang HH**, Xu T and Yang J. (2014) Comparing logistic regression, support vector machines, and permanental classification methods in predicting hypertension. *BMC Proceedings*, 8(Suppl 1):S96.
10. Yu C, Hernandez T, Zheng H, Yau SC, **Huang HH**, He RL, Yang J, and Yau SST. (2013) Real time classification of Viruses in 12 Dimensions. *PLoS One*, 8(5): e17293.
11. **Huang HH** and Yeh YR. (2011) Iterative algorithm for robust kernel principal component analysis. *Neurocomputing*, 74(18), 3921-3930
12. **Huang HH**, Hsiao CK and Huang SY. (2010) Statistics: Nonlinear regression. *International Encyclopedia of Education*, 3rd Edition, London, Elsevier. 339-346

Technical Reports

1. Huang HH, Hsiao CK, Huang SY. (2008) Nonlinear regression analysis. Academia Sinica Technical Report, 2008-8
2. Chen H and Huang HH (2008) Model selection consistency of Cp-LASSO in linear regression with orthonormal regressors. Academia Sinica Technical Report, 2008-9

In Preparation

1. **Huang HH**, Phuong P, and Harrison C. (2018) Network quadratic discriminant analysis. Prepared for submitting to *Statistics in Medicine*
2. **Huang HH**, Zheng D, and Yang J. (2018) Network quadratic discriminant analysis. Prepared for submitting to *Computational Statistics & Data Analysis*

Submitted

1. **Huang HH**, Wang Z, and Chung W. (2018) Efficient Parameter Selection for Support Vector Machines. Submitted to Enterprise Information Systems
2. Zhu H, **Huang HH**, and Pang S. (2018) Photon allocation strategy in region-of-interest tomographic imaging. Submitted to the IEEE Transactions on Computational Imaging.
3. **Huang HH** and Zhang T. (2018) Robust optimal scoring discriminant analysis. Submitted to Pattern Recognition Letters.
4. Liu H, Yang J, **Huang HH**, and Jeffery C. (2018) A prognostic multi-gene signature for predicting the risk of breast cancer recurrence using RNA-sequencing data. Submitted to Scientific Reports.
5. **Huang HH**, Condor A, and Huang H. (2018) Spatial ICA for dimension reduction and classification of EEG artifact signals. Submitted to New Frontiers of Biostatistics and Bioinformatics.
6. **Huang HH** and Yang J. (2018). An affine-transformation invariant cluster process. Submitted to Statistica Sinica.
7. **Huang HH** and Jiban MJH. (2018). A Review of Natural Vectors with the application of the African Swine Fever Virus. Submitted to Journal of Statistical Distributions and Applications.

○ **Presentations**

Invited

1. 2019 The 3rd International conference on statistical distributions and applications, Oct. 10.
2. 2019 International Chinese Statistical Association Applied Statistics Symposium, Jun. 9.
3. 2018, 2017, 2016, 2015 University of Central Florida, Statistical Seminars/colloquiums
4. 2018, 2017, 2016, 2015 University of Illinois at Chicago, Statistical Seminars
5. 2018 The 7th Workshop on Biostatistics and Bioinformatics, May 04.
6. 2018 International Chinese Statistical Association Applied Statistics Symposium, Jun. 16.
1. 2018 American Statistical Association Florida Chapter Meeting, Apr. 6.
7. 2017 Joint Statistical Meetings, Aug. 1.
8. 2017 IEEE International Conference on Intelligence & Security Informatics, Jul. 22.
9. 2017 American Statistical Association Florida Chapter Meeting, Feb. 4.
10. 2016 The International conference on statistical distributions and applications, Oct. 16
11. 2016 The 5th Workshop on Biostatistics and Bioinformatics, May 5.
12. 2016 American Statistical Association Florida Chapter Meeting, Feb 12.
13. 2016 Sapienza University of Rome, Statistical Seminar, May 9.
14. 2016 Georgia Institute of Technology, Statistical Seminar, Mar. 31.
15. 2015 American Statistical Association Florida Chapter Meeting, Feb 12.

16. 2014 Algorithms for Threat Detection Workshop, Mar. 10

Contributed and referred

1. 2018 UF Stats Winter Workshop poster presentation, two posters, Jan 19
2. 2015 The 4th Biometrics & Biostatistics Exhibition Conference, Nov 16
3. 2015 International Genetic Epidemiology Meeting, Oct 04
4. 2015 The 4th Workshop on Biostatistics and Bioinformatics, May 08
5. 2014 Midwest Biopharmaceutical and Statistics Workshop, May 14
6. 2013 International Conference on Health Policy Statistics 10th Annual Conference, Jan. 10.
7. 2013 International Genetic Epidemiology Society 22nd Annual Conference, Oct.14.
8. 2013 Midwest Biopharmaceutical and Statistics Workshop, May 14
9. 2013 Argonne National Laboratory for SIAM chapter meeting, May 10.
10. 2012 Workshop on Algorithms for Threat Detection, Nov. 26.
11. 2012 Genetics Analysis Workshop (GAW18), Oct. 14

Teaching

- Courses taught at the University of Central Florida

Spring 2018

STA6704 Data Mining Methodology II. Revised the lecture materials

STA6714 Data Preparation. Revised the lecture materials

Fall 2017

STA7734 Statistical Asymptotic Theory in Big Data. First time teaching, designing new lectures.

STA6714 Data Preparation. Revised the lecture materials

Summer 2017

STA6704 Data Mining Methodology II. First time teaching, designing new lectures.

STA2023-Statistical Methods I

Spring 2018

STA6704 Data Mining Methodology II. First time teaching, designing new lectures.

STA6714 Data Preparation, Revised the lecture materials

Fall 2017

STA5703 Data Mining Methodology I

STA4173 Biostatistical Methods

STA6908 Independent Study; advising our Master's student: Aubrey Condor

Summer 2017

STA2023-Statistical Methods I

Spring 2017

STA6714 Data Preparation

STA6908 Independent Study; advising a Master's student: Yanmei Patella

STA5907 Independent Study; advising a Bachelor's student: Shiala Morales

Fall 2016

STA5703 Data Mining Methodology I

STA4173 Biostatistical Method: online course

STA 6908 Independent Study; advising a Master's student: Zijng Wang

Summer 2016

STA2023-Statistical Methods I

Spring 2016

STA6226- Sampling Theory and Applications

Fall 2016

STA4173-Biostatistical Methods

STA6237-Nonlinear Regression

Summer 2015

STA2023-Statistical Methods I

Spring 2015

STA 5045: Statistical Analysis in Communication

STA 6507: Nonparametric Statistics

Fall 2014

STA 4173: Biostatistical Methods

STA 6237: Nonlinear Regression

- Course taught at the University of Illinois at Chicago
STAT 401: Introduction to Probability

Teaching Assistantship

University of Illinois at Chicago 2011–2013

MATH 310: Applied Linear Algebra, Fall 2013

MATH 210: Calculus III–Maple Lab, Fall 2013

MATH 123: Quantitative Reasoning, Summer 2013

STAT 381: Introduction to Statistics, Spring 2013

MATH 210: Calculus III–Maple Lab, Fall 2012

MATH 160: Finite Mathematics for Business, Summer 2012

STAT 381: Introduction to Statistics, Spring 2012

MATH 210: Calculus III–Maple Lab, Fall 2011

Georgia Institute of Technology 2009–2011

ISyE 6412: Theoretical Statistics

ISyE 6416: Computational Statistics

- **Thesis Committee Member**

1. Drew Doyle. 2016, Honors in his thesis, Title: “Ugh...Statistics! College students’ perceptions and attitudes toward their statistics courses”
2. Amanda Goedeker. 2016, Master’s Thesis, Title: “Analysis of employment and earnings using varying coefficient models to assess success of minorities and women”
3. Ahmed Farid, 2017. Ph.D. candidacy and dissertation proposal, Title: “Evaluating and facilitating the transferability of safety performance functions”

4. Donald Porchia, 2017. Ph.D. candidacy and dissertation proposal, Title: “Modeling and simulation of heterogeneity and stochasticity in infectious disease transmission”
5. Whoibin Chung, 2018. Ph.D. candidacy and dissertation proposal, Title: “Development of decision support system for active traffic management systems considering travel time reliability”

Service

- **Department and University**
 - a. **Chairing a section of the 3rd International Conference on Statistical Distributions and Applications (ICOSDA) 2019.**
 - b. **Chairing the committee of American Statistical Association Florida Meeting 2019.**
 - c. **Hosting departmental colloquium 2018 – current**
 - d. **Faculty liaison of CFE data analytics competitions 2018 - current**
 - e. **Committee member of Data Mining Program Assessment, 2017 - current**
 - f. **Committee member of graduate study, 2017 - current**
 - g. **Committee member of Statistics colloquium, 2017 - current**
 - h. **Hosting the Big Data seminar 2016 – 2018**
 - i. **Advising the students in the Pilot Project of DNA study 2016- 2017**
 - j. **Mentoring Disney entertainment waiting time data analytics competition 2017**
 - k. **Mentoring CFE data analytics competitions 2017-current**
 - l. **Mentoring SAS shootout data analytics competition 2016-2018**
 - m. **Mentoring SAS Student Symposium 2016**
 - n. **UCF student organization, Bridge International, faculty advisor 2017-current**
- **Professional**
 - a. **Scientific Program Committee member for ICOSDA2019**
 - b. **Academic Panel Member 2016**

2016 American Statistical Association Florida Chapter Meeting

c. Journal Reviewer

New Frontiers of Biostatistics and Bioinformatics 2018

Brazilian Journal of Probability and Statistics 2018

IEEE Transactions on Cybernetics 2017

International Journal of Plant Physiology 2014-2016

Journal of Translational Psychiatry 2016-2017

Journal of Theoretical Biology 2016-2017

Scientific Reports 2016-2017

SDRP Journal of Biomedical Engineering 2016

Open Biology 2016

d. Book Reviewer

The ICSA Springer Book for the Workshop on Biostatistics & Bioinformatics 2018

e. Guest lecturer

Lecture of Biostatistics at Adventist University of Health Sciences, Feb 5, 2018

f. Statistical Consultant 2013-2014

The Statistical Laboratory at University of Illinois at Chicago