

Vincent Q. Vu

Department of Statistics
The Ohio State University
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Current Position

Associate Professor 2019–
Department of Statistics, The Ohio State University

Education

Ph.D., Statistics, University of California, Berkeley 2009
Thesis: *High Dimensional Estimation and Data Analysis: Entropy and Regularized Regression*
Committee: Bin Yu (chair), John Rice, Jack Gallant
GPA: 4.0/4.0

M.A., Statistics, University of California, Berkeley 2005

B.A., Statistics, University of California, Berkeley 2002

Professional Experience

Associate Professor 2019–
Department of Statistics, The Ohio State University

Assistant Professor 2012–2019
Department of Statistics, The Ohio State University

NSF Postdoctoral Fellow 2009–2012
Department of Statistics, Carnegie Mellon University

Graduate Research Assistant 2006
CCS-5: Discrete Simulation Sciences, Los Alamos National Laboratory

Graduate Research Assistant 2005
D-1: Statistical Sciences, Los Alamos National Laboratory

Software/Systems Design Engineer 1996–2002
Creative Advanced Technology Center, Scotts Valley, CA

Awards

Best Paper (with Jing Lei) 2012
15th International Conference on Artificial Intelligence and Statistics (AISTATS)

Grants & Fellowships

- Theory and algorithms for computational sufficiency* 2019–2022
National Science Foundation. DMS-1916446.
- Statistical Learning for High-Dimensional Relational Data* 2015–2019
National Science Foundation. DMS-1513621.
- Mathematical Sciences Postdoctoral Research Fellowship* 2009–2012
National Science Foundation. DMS-0903120.

Papers

PREPRINTS

2. V. Q. Vu. Computational sufficiency, reflection groups, and generalized lasso penalties. 2018. arXiv: 1809.02857.
1. V. Q. Vu. Group invariance and computational sufficiency. 2018. arXiv: 1807.05985.

PEER-REVIEWED PUBLICATIONS

12. V. Q. Vu and J. Lei. Squared-norm empirical processes. *Statistics & Probability Letters* 150 (2019), pp. 108–113. arXiv: 1312.1005.
11. L. Castellanos, V. Q. Vu, S. Perel, A. B. Schwartz, and R. E. Kass. A multivariate Gaussian process factor model for hand shape during reach-to-grasp movements. *Statistica Sinica* 25.1 (2015), pp. 5–24.
10. J. Lei and V. Q. Vu. Sparsistency and agnostic inference in sparse PCA. *Annals of Statistics* 43.1 (2015), pp. 299–322.
9. V. Q. Vu, J. Cho, J. Lei, and K. Rohe. Fantope projection and selection: a near-optimal convex relaxation of sparse PCA. In: *Advances in Neural Information Processing Systems (NIPS)* 26. Ed. by C. Burges, L. Bottou, M. Welling, Z. Ghahramani, and K. Weinberger. 2013, pp. 2670–2678.
8. V. Q. Vu and J. Lei. Minimax sparse principal subspace estimation in high dimensions. *Annals of Statistics* 41.6 (2013), pp. 2905–2947.
7. V. Q. Vu and J. Lei. Minimax rates of estimation for sparse PCA in high dimensions. In: *Proceedings of the Fifteenth International Conference on Artificial Intelligence and Statistics (AISTATS)*. Ed. by N. Lawrence and M. Girolami. Vol. 22. JMLR W&CP. Best paper award. 2012, pp. 1278–1286. arXiv: 1202.0786.
6. V. Q. Vu, P. Ravikumar, T. Naselaris, K. N. Kay, J. L. Gallant, and B. Yu. Encoding and decoding V1 fMRI responses to natural images with sparse nonparametric models. *Annals of Applied Statistics* 5.2B (2011), pp. 1159–1182.
5. V. Q. Vu, B. Yu, and R. E. Kass. Some statistical issues in estimating information in neural spike trains. In: *Acoustics, Speech, and Signal Processing, IEEE International Conference on*. IEEE Computer Society, 2009, pp. 3509–3512.

4. V. Q. Vu, B. Yu, and R. E. Kass. [Information in the non-stationary case](#). *Neural Computation* 21 (2009), pp. 688–703.
3. P. Ravikumar, V. Q. Vu, B. Yu, T. Naselaris, K. N. Kay, and J. L. Gallant.) In: *Advances in Neural Information Processing Systems (NIPS) 21*. Ed. by D. Koller, D. Schuurmans, Y. Bengio, and L. Bottou. Spotlight presentation. 2008.
2. V. Q. Vu, B. Yu, and R. E. Kass. [Coverage adjusted entropy estimation](#). *Statistics in Medicine* 26.21 (2007), pp. 4039–4060.
1. G. Yan, H. D. Flores, L. Cuellar, N. Hengartner, S. Eidenbenz, and V. Q. Vu. [Bluetooth worm propagation: mobility pattern matters!](#) In: *ASLACCS '07: Proceedings of the 2nd ACM Symposium on Information, Computer and Communications Security*. New York, NY, USA: ACM, 2007, pp. 32–44.

Patents

2. L. Dahl, J.-M. Jot, V. Q. Vu, and D. Massie. [Reverberation processor for interactive audio applications](#). 6,978,027. 2000.
1. E. Lange, S. Dicker, V. Q. Vu, and S. Hoge. [Re-use of special purposed registers as general purpose registers](#). 6,289,435. 1999.

Presentations

INVITED TALKS

25. [Total variation denoising, isotonic regression, and reflection groups](#). Information Theory and Applications (ITA) Workshop. San Diego, California, Feb. 15, 2019.
24. [Generalized lasso penalties and reflection groups](#). Department of Mathematics, Keio University. Yokohama, Japan, Dec. 26, 2018.
23. [Group invariance and computational sufficiency](#). Newton Institute Workshop: Future challenges in statistical scalability. INI, Cambridge, United Kingdom, June 29, 2018.
22. [A surprising connection between single-linkage, graphical lasso, sparse PCA, and other \$L_1\$ penalized estimators](#). International Conference on Econometrics and Statistics (EcoSta 2018). Hong Kong, June 20, 2018.
21. [A formal equivalence between implicit and explicit regularization for GLMs](#). Information Theory and Applications (ITA) Workshop. San Diego, California, Feb. 16, 2018.
20. [Group invariance and computational sufficiency for regularized M-estimators](#). Oberwolfach Workshop: Statistical Recovery of Discrete, Geometric and Invariant Structures. MFO, Oberwolfach, Germany, Mar. 23, 2017.
19. [Regularization and computational sufficiency in high-dimensional matrix estimation](#). Department of Mathematics, Keio University. Yokohama, Japan, July 6, 2016.
18. [Regularization and computational sufficiency in high-dimensional matrix estimation](#). Information Theory and Applications (ITA) Workshop. La Jolla, California, Feb. 5, 2016.
17. [The interplay between regularization and computation in high-dimensional matrix estimation](#). 9th Conference of the Asian Regional Section of the IASC. Singapore, Dec. 18, 2015.
16. [A multivariate Gaussian process factor model for hand shape during reach-to-grasp movements](#). ICASA Applied Statistics Symposium/Graybill Conference. Fort Collins, Colorado, June 17, 2015.

15. Sparse PCA via Fantope projection and selection. Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting 2014. San Francisco, California, Nov. 20, 2014.
14. A new approach to sparse PCA. Department of Statistics, University of Michigan. Ann Arbor, Michigan, Oct. 21, 2014.
13. A new approach to sparse PCA. Department of IOMS, Stern School of Business, New York University. New York, New York, Oct. 3, 2014.
12. Sparse PCA via Fantope projection and selection. International Indian Statistical Association Conference. Riverside, California, July 11, 2014.
11. Fantope projection and selection. Conference on Statistical Learning and Data Mining (SLDM). Durham, North Carolina, June 11, 2014.
10. Synergy and variation in hand shape during reach-to-grasp movements. OSU/CCF/CWRU Biostatistics Symposium. Columbus, Ohio, Apr. 10, 2014.
9. Fantope projection and selection. Information Theory and Applications (ITA) Workshop. San Diego, California, Feb. 14, 2014.
8. Sparse PCA in high dimensions. Artificial Intelligence Seminar, Ohio State University. Columbus, Ohio, Feb. 6, 2014.
7. Sparse principal components and subspaces. Department of Statistics, University of Wisconsin-Madison. Madison, Wisconsin, Oct. 2, 2013.
6. Sparse principal components and subspaces. Department of Statistics, Rice University. Houston, Texas, Sept. 16, 2013.
5. Sparse principal components and subspaces. Statistical Machine Learning Seminar, Institute of Statistical Mathematics. Tokyo, Japan, July 11, 2013.
4. Sparse principal subspaces. Conference on Statistical Learning and Data Mining (SLDM). Ann Arbor, Michigan, June 8, 2012.
3. Minimax rates of estimation for sparse PCA in high dimensions. International Conference on Artificial Intelligence and Statistics (AISTATS). La Palma, Spain, Apr. 23, 2012.
2. Some statistical issues in estimating information in neural spike trains. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP). Taipei, Taiwan, Apr. 24, 2009.
1. Coverage adjusted entropy estimation. Institute of Statistical Mathematics. Tokyo, Japan, July 2007.

INVITED POSTERS

3. Fantope projection and selection: a near-optimal convex relaxation of sparse PCA. Neural Information Processing Systems (NIPS). Stateline, Nevada, Dec. 7, 2013.
2. Sparse principal subspaces. IMS Meeting of New Researchers in Statistics and Probability. La Jolla, California, July 27, 2012.
1. Nonparametric sparse hierarchical models describe V1 fMRI responses to natural images. Neural Information Processing Systems (NIPS). Vancouver, Canada, Dec. 10, 2009.

CONTRIBUTED POSTERS

2. Sparse principal subspaces. Conference on Data Analysis (CODA). Santa Fe, New Mexico, Feb. 2012.
1. Coverage adjusted entropy estimation. Statistical Analysis of Neural Data (SAND). Pittsburgh, Pennsylvania, May 2007.

Teaching

THE OHIO STATE UNIVERSITY

<i>Statistics 4194: Introduction to R for Data Science</i>	Sp 19
<i>Foundations of Statistics (online course)</i>	Sp 17, Su 17, Au 17, Sp 18, Su 18
<i>Statistics 7560: Multivariate Analysis</i>	Sp 2013–2015, Sp 2017
<i>Statistics 7301: Advanced Statistical Theory I</i>	Au 2014–2018
<i>Statistics 6730: Introduction to Computational Statistics</i>	Au 2012–2018
<i>Statistics 5302: Intermediate Data Analysis II</i>	Sp 2018

CARNEGIE MELLON UNIVERSITY

<i>Statistics 36-722: Continuous Multivariate Analysis</i>	Spring 2012
<i>Statistics 36-350: Statistical Computing</i>	Fall 2011
<i>Statistics 36-464/664: Applied Multivariate Methods</i>	Spring 2011

UNIVERSITY OF CALIFORNIA, BERKELEY

<i>Statistics 135: Concepts in Statistics (GSI)</i>	Spring 2006, Spring 2009
<i>Statistics 248: Time Series Analysis (GSI)</i>	Fall 2006
<i>Statistics 131a: Statistical Inference for Social and Life Scientists (GSI)</i>	Fall 2004
<i>Statistics 2: Introduction to Statistics (GSI)</i>	Fall 2003

Advising

PH.D. DISSERTATION COMMITTEE CHAIR

Qian Qian (co-advised with Yunzhang Zhu)	8/2019
Liubo Li (co-advised with Yoonkyung Lee)	8/2017
Zhifei Yan	8/2017

PH.D. DISSERTATION COMMITTEE MEMBER

Siyuan Ma (Computer Science & Engineering)	4/2019
Jerzy Wieczorak (Carnegie Mellon University, Statistics)	4/2018
Justin Eldridge (Computer Science & Engineering)	11/2017
Andrew Landgraf	6/2015
Sungmin Kim	4/2014
Zhiyu Liang	12/2013

PH.D. CANDIDACY EXAM COMMITTEE CHAIR

Liubo Li (co-chair)	7/2016
Qian Qian	7/2016
Zhifei Yan	7/2015

PH.D. CANDIDACY EXAM COMMITTEE MEMBER

Jiae Kim	6/2019
Dingkang Wang (Computer Science & Engineering)	5/2019
Siyuan Ma (Computer Science & Engineering)	4/2018
Jerzy Wieczorak (Carnegie Mellon University, Statistics)	8/2016
Justin Eldridge (Computer Science & Engineering)	9/2015
Rohit Deshmukh (Mechanical & Aerospace Engineering)	8/2014
Yanan Jia	7/2014
Andrew Landgraf	4/2014
Sungmin Kim	7/2013
Zhiyu Liang	12/2012

UNDERGRADUATE

Robin Dunn (Kenyon College, <i>Senior Honors Examiner</i>)	5/2016
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Service

EDITORIAL

Associate editor

Annals of Statistics	8/2019–
Journal of the American Statistical Association/The American Statistician, Reviews	1/2014–12/2016

Journal reviewer

Annals of Applied Statistics, Annals of Statistics, Biometrika, Journal of Computational and Graphical Statistics, Journal of Computational Neuroscience, Journal of Machine Learning Research, Journal of Multivariate Analysis, Journal of the American Statistical Association, Journal of the Royal Statistical Society: Series B, Linear and Multilinear Algebra, Machine Learning, Neural Computation, Neural Processing Letters, Proceedings of the IEEE, Proceedings of the National Academies of Sciences, Statistica Sinica, Statistics and Computing, Technometrics

Conference reviewer

Artificial Intelligence and Statistics (AISTATS), International Conference on Machine Learning (ICML),
Neural Information Processing Systems (NeurIPS)

Proposal reviewer

National Science Foundation, panel reviewer 2016,2017
Swiss National Science Foundation, ad-hoc reviewer 2017,2018

DEPARTMENTAL

Department of Statistics, The Ohio State University

Ph.D. qualifying exam II committee, member 2013-
Masters of Applied Statistics exam committee, member 2012-2013
Computer advisory committee, member 2017-
Graduate admissions committee, member 2015
Seminar committee, member 2014, 2015
Translational data analytics committee, member 2015-2017

Department of Statistics, University of California, Berkeley

Web committee, student member 2008
Statistics graduate students association, president 2006-2007

UNIVERSITY

The Ohio State University

Denman Undergraduate Research Forum, Judge 2016
ASA DataFest @ OSU, Mentor 2016, 2018
Graduate Faculty Representative, Ph.D. Exam
Donald S. Williamson (Computer Science & Engineering) 4/2016
Yuxuan Wang (Computer Science & Engineering) 3/2015

PROFESSIONAL

Conference session chair

JSM 2013, ISBIS/ASA SLDM 2014, WNAR 2014, IISA 2014

Memberships

American Statistical Association (ASA)

Institute of Electrical and Electronics Engineers (IEEE)

Institute of Mathematical Statistics (IMS)