Zhiyang Zhang

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ACADEMIC APPOINTMENTS

- Instructor, Department of Statistics, Virginia Tech   January 2017 – present
- Instructor, Nanoscience Program, Virginia Tech   Aug. 2013 – May 2015

EDUCATION

- M.S., Department of Statistics, Virginia Tech   Aug. 2015 – Dec. 2016
- Ph.D., Department of Chemistry, Virginia Tech   Aug. 2008 – Aug. 2013
- M.S., Department of Chemistry, Sun Yat-sen University   Sept. 2005 – June 2008

RESEARCH INTERESTS AND SKILLS

- Data Science Pedagogy
- Engineering Statistics and Application
- Design and Analysis of Online Experiments
- Covariance Matrix Estimation and Portfolio Optimization

COMPUTING SKILLS

- Statistical Package − R, JMP, SAS, Minitab.
- Programming Language − Python, Matlab.

HONORS and AWARDS

- Recognized by "Thank-a-Teacher" from Center for Excellence in Teaching and Learning, Virginia Tech, 2020

TEACHING EXPERIENCE

Department of Statistics, Virginia Polytechnic Institute and State University

- Instructor for STAT 4214 "Regression Analysis", Spring 2023.

- Instructor for STAT 3704 "Statistics for Engineering Applications", Spring 2017, Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023.

    - This course always has a large enrollment with 100+ students.

- Instructor for STAT 4705 "Statistics for Engineers", Spring 2017, Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall

2021, Spring 2022, Fall 2022, Spring 2023.

- ▪ This course always has diverse backgrounds of students from statistics, computer science, and engineering.

- Instructor for STAT "3006-Statistical Methods II", Fall 2017, Fall 2018, Fall 2019, Fall 2020.

Department of Chemistry, Virginia Polytechnic Institute and State University
- Lab instructor of Nano 3015 and 3016: Nanoscale Synthesis, Fabrication, and Characterization, Fall 2013, Spring 2014, Fall 2014 and Spring 2015.
- Lab instructor of Chem. 6664: NMR Methods in Chemistry and Polymer Science, Spring 2011, Spring 2012
- Instructor of Chem. 2124: Analytical Chemistry Lab, Fall 2011
- Instructor of Chem. 1046: General Chemistry Lab, Fall 2008, Spring 2009

PUBLICATIONS & REPORTS

1. Kang, X., **Zhang, Z.**, and Deng X. (2022). Covariance Estimation via Modified Cholesky Decomposition, *in Springer Handbook of Engineering Statistics (2nd Edition),* in press.

2. Chan, V., Tsui, K-W, Wei, Y., **Zhang, Z.** and Deng, X. (2021). Efficient Estimation of Smoothing Spline with Exact Shape Constraints, *Statistical Theory and Related Fields,* **5(1)**, 55-69.

3. Shen, S., **Zhang, Z.**, and Deng, X. (2020). On Design and Analysis of Funnel Testing Experiments in Webpage Optimization, *Journal of Statistical Theory and Practice,* **14**, article 3.

4. Schultz, A. R.; Lambert, P. M.; Chartrain, N. A.; Ruohoniemi, D. M.; **Zhang, Z.**; Jangu, C.; Zhang, M.; Williams, C. B.; Long, T. E. (2014). 3D Printing Phosphonium Ionic Liquid Networks with Mask Projection Microstereolithography, *ACS Macro Letters*, 3, 1205-1209.

5. Zhang, Z. and Madsen, L. A. (2014). Observation of Separate Cation and Anion Electrophoretic Mobilities in Pure Ionic Liquids. *J. Chem. Phys*, 140(8), 084204. (2014 Editor's Choice, JCP)

6. Simons T. J.; Bayley P. M.; **Zhang Z.**; Howlett P. C.; MacFarlane D. R.; Madsen L. A.; Forsyth M. J. (2014). Influence of Zn^{2+} and Water on the Transport Properties of a Pyrrolidinium Dicyanamide Ionic Liquid. *Phys. Chem. B*, 118(18), 4895–4905.

7. Lingwood M. D.; **Zhang Z.**; Kidd B. E.; McCreary K. B.; Hou J.; Madsen L. A. (2013). Unraveling the Local Energetics of Transport in a Polymer Ion Conductor, *Chem. Commun.*, (39), 4283-4285.

8. Hou J.; **Zhang Z.**; Madsen L. A. (2011). Cation/Anion Associations in Ionic Liquids Modulated by Hydration and Ionic Medium, *J. Phys. Chem. B*, 115(16), 4576–4582.

Submitted

9. Shen, S. **Zhang, Z.**, Jin, R., and Deng, X. (2023). Sparse Estimation and Variable Selection for Dynamic Generalized Linear Models, revision for *IISE Transactions.*

OTHER PROFESSIONAL EXPERIENCE

- **Research Assistant, Virginia Tech**   Aug. 2016-Dec. 2016

  Develop degradation model based on multiple sensors for data-driving model and optimization for high-energy manufacturing

- **Instructor, Nanoscience Program, Virginia Tech**   Aug. 2013 – May 2015

  Developed Nano 3015 lab and 3016 lab: Nanoscale Synthesis, Fabrication, and Characterization

- **Postdoctoral Associate, Virginia Tech**   Aug. 2013 – Dec. 2014

  Developed salt permeability technique (instrumentation)

  Studied composition-structure-property relationships of polymers

- **Graduate Research Assistant, Virginia Tech**   Aug. 2009 – Aug. 2013

  Developed electrophoretic NMR technique (instrumentation and characterization)

  Studied composition-structure-property relationships of zinc-air batteries using multi-modal NMR

- **Intern, SHARP Laboratories of America**   May 2011 – Aug. 2011

  Modeled phosphor layers with dichroic filters for the application of white LEDs using Matlab

STATISTICS COURSEWORK

- Statistical Inference, Probability, Regression and ANOVA, Research in Statistics II, Data analytics, Regression, Survival Analysis, Design of Experiment, Regression

PROFESSIONAL ASSOCIATIONS

- Member of American Statistical Association (ASA).