

# Vicky Yao

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## Education

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- 2018 **Ph.D. in Computer Science** • Princeton University  
Dissertation: *Integrative network-based approaches to analyze genomics data*  
Adviser: Olga Troyanskaya  
Committee: Ryan Adams, Barbara Engelhardt, Coleen Murphy, Mona Singh
- 2011 **M.S. in Statistics** • University of Chicago  
Thesis: *Network Inference with Gene Expression Data Using Correlation and Regression-Based Methods*  
Adviser: Mathias Drton
- 2011 **B.A. in Economics, Minor in Computer Science** • University of Chicago

## Research

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- 2019- **Rice University** • Houston, TX  
Assistant Professor, Department of Computer Science
- Princeton University** • Princeton, NJ
- 2018-2019 Postdoctoral Research Associate, Lewis-Sigler Institute for Integrative Genomics
- 2012-2018 Graduate Research Assistant, Department of Computer Science
- 2009-2010 Research Intern, Lewis-Sigler Institute for Integrative Genomics  
Adviser: Olga Troyanskaya

## Publications

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\* indicates co-first authorship      # indicates co-corresponding

### Preprints

1. L Li, R Dannenfelter, Y Zhu, N Hejduk, S Segarra<sup>#</sup>, **V Yao**<sup>#</sup>. "Joint embedding of biological networks for cross-species functional alignment." *bioRxiv*, 2022.
2. **V Yao**, A Aly, S Kalik, J Gresack, W Wang, A Handler, A Schaefer, OG Troyanskaya, P Greengard, RU Chottekalapanda. "Neuron-Glia Signaling Regulates the Onset of the Antidepressant Response." *bioRxiv*, 2021.

### Published

3. R Dannenfelter\*, G Allen\*, B VanderSluis, AK Koegel, S Levinson, SR Stark, **V Yao**, A Tadych, OG Troyanskaya, WA Lim. "Discriminatory power of combinatorial antigen recognition in cancer T cell therapies." *Cell Systems*, 2020.

4. DE Orange\*, **V Yao\***, J Fak, S Parveen, M Frank, N Blachere, OG Troyanskaya, R Darnell. “RNA Identification of PRIME Cells Predicting Rheumatoid Arthritis Flares.” *New England Journal of Medicine*, 2020.
5. JP Roussarie\*, **V Yao\***, Z Plautz, SE Kasturia, C Albornoz, E Schmidt, L Brichta, A Barnea-Cramer, N Heintz, PR Hof, M Heiman, M Flajolet, OG Troyanskaya, P Greengard. “Selective neuronal vulnerability in Alzheimer’s Disease: a network-based analysis.” *Neuron*, 2020.
6. J Zhou\*, IE Schor\*, **V Yao**, CL Theesfeld, R Marco-Ferreres, A Tadych, EEM Furlong, OG Troyanskaya. “Accurate genome-wide predictions of spatio-temporal gene expression during embryonic development.” *PLoS Genetics*, 2019.
7. D Sargin\*, RU Chottekalapanda\*, K Perit, **V Yao**, D Chu, DW Sparks, S Kalik, OG Troyanskaya, EF Schmidt, N Heintz, P Greengard, EK Lambe. “Mapping the physiological and molecular markers of stress and antidepressant treatment in S100a10 corticostriatal neurons.” *Molecular Psychiatry*, 2019.
8. **V Yao\***, R Kaletsky\*, W Keyes, D Mor, AK Wong, CT Murphy, OG Troyanskaya. “An integrative tissue-network approach to identify and test human disease genes.” *Nature Biotechnology*, 2018.
9. R Kaletsky\*, **V Yao\***, A Williams, AM Runnels, A Tadych, S Zhou, OG Troyanskaya, CT Murphy. “Transcriptome analysis of adult *Caenorhabditis elegans* cells reveals tissue-specific gene and isoform expression.” *PLoS Genetics*, 2018.
10. **V Yao\***, AK Wong\*, OG Troyanskaya. “Enabling Precision Medicine through Integrative Network Models.” *Journal of Molecular Biology*, 2018.
11. AV Rangan, CC McGrouther, J Kelsoe, N Schork, E Stahl, Q Zhu, A Krishnan, **V Yao**, OG Troyanskaya, S Bilaloglu, P Raghavan, S Bergen, A Jureus, M Landen; Bipolar Disorders Working Group of the Psychiatric Genomics Consortium. “A loop-counting method for covariate-corrected low-rank biclustering of gene-expression and genome-wide association study data.” *PLoS Computational Biology*, 2018.
12. A Krishnan\*, R Zhang\*, **V Yao**, CL Theesfeld, AK Wong, A Tadych, N Volfovsky, A Packer, A Lash, OG Troyanskaya. “Genome-wide prediction and functional characterization of the genetic basis of autism spectrum disorder.” *Nature Neuroscience*, 2016.
13. E Watson, V Olin-Sandoval, MJ Hoy, CH Li, T Louise, **V Yao**, A Mori, AD Holdorf, OG Troyanskaya, M Ralser, AJ Walkout. “Metabolic network rewiring of propionate flux compensates vitamin B12 deficiency in *C. elegans*.” *eLife*, 2016.
14. J Goya\*, AK Wong\*, **V Yao\***, A Krishnan, M Homilius, OG Troyanskaya. “FNTM: a server for predicting functional networks of tissues in mouse.” *Nucleic Acids Research*, 2015.
15. AK Wong, A Krishnan, **V Yao**, A Tadych, OG Troyanskaya. “IMP 2.0: a multi-species functional genomics portal for integration, visualization and prediction of protein functions and networks.” *Nucleic Acids Research*, 2015.
16. M Bansal, ..., **NCI Dream Community**. “A community computational challenge to predict the activity of pairs of compounds.” *Nature Biotechnology*, 2014.

17. Y Guan, **V Yao**, K Tsui, M Gebbia, MJ Dunham, C Nislow, OG Troyanskaya. “Nucleosome-coupled expression differences in closely-related species.” *BMC Genomics*, 2011.

## Invited Presentations

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- 2021 Baylor College of Medicine, *Human Genome Sequencing Center Seminar*  
 2021 Rice REU in Multi-Scale Biomolecular Networks  
 2020 WiDS (Women in Data Science) Houston  
 2020 Rice University, *BioSciences Department Colloquia*  
 2019 Rice University, *Machine Learning Seminar*  
 2019 Carnegie Mellon University, *School of Computer Science Seminar*  
 2019 NIH, *NHGRI Seminar*  
 2019 University of Maryland, *Department of Computer Science Seminar*  
 2019 UCLA, *Bioinformatics Seminar*  
 2019 NIH, *NLM Seminar*  
 2017 Broad Institute, *Models, Inference & Algorithms*  
 2016 Intelligent Systems for Molecular Biology (ISMB) Conference, *plenary*

## Teaching & Mentoring

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- 2020- **COMP 670: Graduate Seminar in Computational Biology**, *Rice University*  
 Development of discussion-based graduate seminar covering computational methods and discoveries in biomedical research
- 2020- **COMP 572: Bioinformatics: Networks**, *Rice University*  
 Development and teaching of graduate-level course covering computational aspects of biological network analysis
- 2017 **Django Girls**, *Princeton University*  
 Coach for programming workshop for women with no coding experience
- 2012-2013 **COS 323: Computing for the Physical and Social Sciences**, *Princeton University*  
 Assistant in Instruction, ~90 students (Fall 2012), ~80 students (Fall 2013)

## PhD Students

- 2020- Wei-Hao Lee, *Systems, Synthetic, & Physical Biology Program*  
 2020- Qiliang Lai, *Department of Computer Science*  
 2020- Sunny Kim, *Department of Computer Science*  
 2020- Lechuan Li, *Department of Computer Science*

## Undergraduates

- 2022- Huzaiifa Ali, *Department of Computer Science*  
 2022- Janhvi Somaiya, *Department of Computer Science*  
 2022- Parv Shrivastava, *Department of Computer Science*  
 2021- Jeffrey Zhong, *Department of Computer Science*

- 2021- Jackie Wu, *Department of Computer Science*
- 2020- Xueyan Mu, *Department of Computer Science*
- 2021 Bikrant Das Sharma, *Department of Computer Science*
- 2021 Sritha Cheemerla, *Department of Computer Science*
- 2021 Nathaniel Hejduk, *Department of Computer Science*
- 2020-2021 Jason Tan, *Department of Computer Science (now PhD student at Stanford)*
- 2020-2021 Nancy Cui, *Department of Bioengineering (now PhD student at MIT)*

## Honors & Awards

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- 2019 CPRIT Scholar, *Cancer Prevention & Research Institute of Texas*
- 2013 Facebook API Award, *HackPrinceton*
- 2011 Gordon Wu Fellow, *Princeton University*
- 2011 Google API Award, *Princeton Startup Weekend*

## Service

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### Professional

- 2021- Editorial Board, *Journal of Computational Biology*
- 2020- Program Committee, *Intelligent Systems in Molecular Biology (ISMB)*
- 2021 Co-organizer, *ICML Workshop on Interpretable Machine Learning in Healthcare*
- 2021 Peer Reviewer, *Alzheimer's Society, UK*
- 2019- Reviewer, *Communications Medicine, iScience, Journal of Computational Biology, mSystems, Nature Communications, Neuron, PLoS Computational Biology, PLoS Genetics, IEEE/ACM Transactions on Computational Biology and Bioinformatics, IEEE/ACM Transactions on Knowledge and Data Engineering*
- 2019 Poster Prize Committee, *ISMB*
- 2016 Poster Committee, *ISMB*

### University & Department

- 2021 Ad Hoc Member, *Computational Faculty Search, Department of Bioengineering*
- 2020- Graduate Admissions Committee, *Systems, Synthetic, & Physical Biology Program*
- 2019- Graduate Admissions Committee, *Department of Computer Science*
- 2020 Committee Member, *Masters of Data Science*

### Outreach

- 2021- Divisional Advisor (Engineering), *Lovett College, Rice University*  
Selected by College Magisters and the Office of Academic Advising to provide advising for undergraduate students interested in engineering prior to declaring a major
- 2020- Faculty Associate, *Lovett College, Rice University*
- 2021 Judge, *HackRice, Rice University*  
Largest annual hackathon at Rice, with >400 participants (Rice and non-Rice students)
- 2021 Panelist, *CSters (Rice Women in Computing)*
- 2021 Judge, *Rice SASE Hackathon, Society of Asian Scientists and Engineers*