Zhiyu Yang

Department of Biological Sciences, Department of Statistics
Purdue University
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Education

Ph.D. candidate in Biological Sciences   Anticipated 2021 Fall
Major Concentration: Integrative Neuroscience-PULSe
Purdue University   West Lafayette, IN, USA
Research Advisor: Prof. Peristera Paschou
Current Graduate School GPA: 3.78/4.0

M.S. in Statistics   Anticipated 2021 May
Major Concentration: Statistics and Computer Science
Purdue University   West Lafayette, IN, USA

B.S. in Biotechnology   2011 - 2015
University of Science and Technology of China   Hefei, Anhui, China
Undergraduate GPA: 3.39/4.3

Research Experience

Purdue University, Department of Biological Sciences, Graduate Research Assistant, 08/2017-present
Research Advisors: Prof. Peristera Paschou (Dept. of Biological Sciences)
                                    & Prof. Petros Drineas (Dept. of Computer Science)

- Identifying a shared regulatory background for neurodevelopmental disorders through meta-analysis of genome-wide association studies (GWAS)
- Developing novel methodologies to effectively extract and analyze information from summary statistics of genome-wide association studies
- Familiar with GWAS, rare variants analyses and downstream analyses using individual level data or summary statistics

University of Science and Technology of China, School of Life Science, Undergraduate Research Assistant, 04/2014 – 06/2016
Advisor: Dr. Lizhuang Yang & Dr. Xiaochu Zhang

- Evaluating individual differences in the lateralization of social cognitive function in temporo-parietal junction (TPJ)
- Investigating impacts of electrical stimulation over bilateral occipito-temporal regions on subjects' electroencephalogram (EEG) and the composite face effect
- Experience in collecting and analyzing magnetic resonance imaging (MRI), EEG and behavior data of human subjects

Programming Skills

Good working knowledge and years of experience with bash, python, R, Matlab, Julia, C and Latex. Years of experience working on Linux system.

Selected Coursework

Bioinformatics Algorithms; Statistical Machine Learning; Simulation and Modeling of Computer Systems; Algorithm Design, Analysis, and Implementation; Numerical Analysis; Advanced Statistical Methodology; Applied Decision Theory and Bayesian Analysis etc.

Publications

Yang et al. (2021). *Genotype Reconstruction from Case-Control GWAS Summary Statistics: A novel framework*. Manuscript in preparation.

Yang, Z., Wu, H., Lee, P. H., Tsetsos, F., Davis, L. K., Yu, D., ... & Paschou, P. (in press). Investigating shared genetic basis across Tourette Syndrome and comorbid neurodevelopmental disorders along the impulsivity-compulsivity spectrum. *Biological Psychiatry*.

Topaloudi, A., Zagoriti, Z., Flint, A. C., Martinez, M. B., **Yang, Z.**, Tsetsos, F., ... & Paschou, P. (2020). A Myasthenia Gravis genomewide association study of three cohorts identifies Agrin as a novel risk locus. *medRxiv*.

Yang L. Z., Zhang W., Wang, W., **Yang, Z.**, Wang, H., ... &Zhang, X. (2020). Neural and psychological predictors of cognitive enhancement and impairment from neurostimulation. *Advanced Science*. No. advs.201902863.

Wang, S., Mandell JD., Kumar, Y., Sun, N., Morris, MT., Arbelaez, J., Nasello, C., Dong, S., Duhn, C., Zhao, X., **Yang, Z**., … & State MW. (2018). De Novo Sequence and Copy Number Variants Are Strongly Associated with Tourette Disorder and Implicate Cell Polarity in Pathogenesis. *Cell reports*. Sep 25;24(13):3441-54.

Yang, L. Z., **Yang, Z.**, & Zhang, X. (2016). Non-invasive brain stimulation for the treatment of nicotine addiction: potential and challenges. *Neuroscience bulletin*, *32*(6), 550-556.

Ndasauka, Y., Hou, J., Wang, Y., Yang, L., **Yang, Z.**, Ye, Z., ... & Zhang, X. (2016). Excessive use of Twitter among college students in the UK: Validation of the Microblog Excessive Use Scale and relationship to social interaction and loneliness. *Computers in Human Behavior*, *55*, 963-971.

Yang, L. Z., Zhang, W., Shi, B., **Yang, Z.**, Wei, Z., Gu, F., ... & Zhang, X. (2014). Electrical stimulation over bilateral occipito-temporal regions reduces N170 in the right hemisphere and the composite face effect. *PloS one*, *9*(12), e115772.

Teaching Experience

Purdue University, Microbiology Laboratory (BIOL 22100), Teaching Assistant, 06/2019-08/2019
Course Instructor: Dr. Ashwana Fricker

Purdue University, Microbiology Laboratory (BIOL 22100), Teaching Assistant, 01/2018-05/2018
Course Instructor: Dr. Kiryl Datsenka

Conference Presentations

Z. Yang, PGC Cross-disorder Working group, P. Paschou, Shared biological mechanisms across ADHD,ASD,OCD and TS -- from Genetics to Neurobiology. Presented at Purdue Biological Retreat, November 15-17th, 2019, Plymouth, Indiana (**Oral presentation**)

Z. Yang, H. Wu, P. Lee, F.Tsetsos, L. Davis, D. Yu, S. Lee, S. Dalsgaard, J. Haavik, C. Barta, T. Zayats, V. Eapen, N. Wray, B. Devlin, M. Daly, B. Neale, A. Børglum, J. Crowley, J. Scharf, C. Mathews, S. Faraone, B. Franke, M. Mattheisen, J. Smoller, P. Paschou, Cross-disorder meta-analysis of genomewide association studies sheds light into potentially shared neurobiology across Attention Deficit Hyperactivity Disorder, Autism Spectrum Disorders, Obsessive Compulsive Disorder, and Tourette Syndrome. Presented at 2019 World Congress of Psychiatric Genetics, October 30, 2019, Anaheim, California (**Oral presentation**); partially funded by Purdue University Biological Sciences Department Travel Award

Z. Yang, T. Tsetsos, P. Paschou, Uncovering the Shared Genetic Basis across Childhood-onset Neuropsychiatric Disorders: ADHD, ASD, OCD and TS. Presented at Health and Disease: Science, Technology, Culture and Policy poster session, February 28th, 2019, West Lafayette, Indiana (**Poster Presentation**)

Z. Yang, T. Tsetsos, P. Paschou, Uncovering the Shared Genetic Basis across Childhood-onset Neuropsychiatric Disorders: ADHD, ASD, OCD and TS. Presented at Sigma Xi 2019 poster night, February 26th, 2019, West Lafayette, Indiana (**Poster Presentation**)

Z. Yang, A. Bose, P. Drineas, P. Paschou, Application of Denoising Techniques on SNP-based Risk Prediction for Complex Neuropsychiatric Disorders; (PgmNr 1376). Presented at the 68th Annual Meeting of The American Society of Human Genetics, October 19th, 2018, San Diego, California (**Poster presentation**); partially funded by Purdue Institute for Integrative Neuroscience travel grant

Z. Yang, A. Bose, P. Drineas, P. Paschou, Application of Denoising Techniques on Genome-wide Association Studies. Presented at Health and Disease: Science, Technology, Culture and Policy poster session, March 1st, 2018, West Lafayette, Indiana (**Poster Presentation**)

Z. Yang, A. Bose, TS/OCD PGC Working group, P. Drineas, P. Paschou, Application of machine learning approaches on genotype based disease prediction. Presented at Purdue Biological Retreat, November 10-12th, 2017, Bloomington, Indiana (**Poster presentation**)

Z. Yang, T. Tsetsos, P. Paschou, Identifying a shared regulatory background for neuro-developmental disorders through meta-analysis of genomewide association studies; (PgmNr 2142). Presented at the 67th Annual Meeting of The American Society of Human Genetics, October 19th, 2017, Orlando, Florida (**Poster presentation**)

Honors and Awards

Purdue University, Purdue University Biological Sciences Department Travel Award, 2019

Purdue University, Purdue Institute for Integrative Neuroscience (PIIN) Travel Grant, 2018

University of Science and Technology of China, Outstanding Student Scholarship of **USTC**, 2014

University of Science and Technology of China, Outstanding Student Scholarship of **USTC**, 2013

University of Science and Technology of China, Outstanding Student Scholarship of **USTC**, 2012

University of Science and Technology of China, Freshman Scholarship of **USTC**, 2011

Outreach and Service

Science in Schools Night Event Volunteer, Wea Ridge Elementary School, March 7th, 2019

NanoDays Volunteer, Exhibit Halls of Birck Nanotechnology Center (BNC), Purdue University, April 4th-5th, 2019

Reference List

Prof. Peristera Paschou
Associate Professor, Department of Biological Sciences, Purdue University
Associate Dean for Online and Graduate Education, Purdue College of Science
Tel: 765-494-1601
Email: ppaschou@purdue.edu

Prof. Petros Drineas
Professor and Associate Head, Department of Computer Science, Purdue University
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