# Yuexuan Xu

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## EDUCATION

**University of Wisconsin-Madison, Madison, WI**
Ph.D. in *Population Health Sciences*, with a minor in *Statistics, Quantitative Genetics, and Genetic Epidemiology*, degree expected December 2023
Dissertation: "*Identification of Life Course Gene-Environment Interactions in Cognitive Decline During the Preclinical Stage of Alzheimer's*"
Committee: Corinne Engelman (chair), Jason Fletcher (co-chair), Qiongshi Lu, Lauren Schmitz

**University of Southern California, Los Angeles, CA**
Master of Public Policy, with *Health Economics track*, 2018

**Shandong University, Jinan, China**
Bachelor of Arts in *Public Administration*, 2015

## PUBLICATIONS

### Peer-Reviewed Articles

**Xu, Y**., Vasiljevic, E., Deming, Y., Jonaitis, E. M., Koscik, R. L., Van Hulle, C. A., ... & Engelman, C. D. (2023). "Effect of Pathway-specific Polygenic Risk Scores for Alzheimer's Disease (AD) on Rate of Change in Cognitive Function and AD-related Biomarkers among Asymptomatic Individuals." *J Alzheimer's Dis.* Online ahead of print. PMC pending.

**Xu, Y.,** Sun, Z., Jonaitis, E. M., Deming, Y., Lu, Q., ... & Engelman, C. D. (2023). "Apolipoprotein E moderates the association between Non-APOE Polygenic Risk Score for Alzheimer's Disease and Aging on Preclinical Cognitive Function." *Alzheimer's & Dementia* (*Accepted with minor revision*, preprint available at medRxiv https://www.medrxiv.org/content/10.1101/2023.06.09.23291215v1)

### Articles under Review or Prepared for Submission (completed)

**Xu, Y.,** Sun, Z., Jonaitis, E. M., Lu, Q., Johnson, S. C., & Engelman, C. D. (2023). "Mid-to-Late Life Healthy Lifestyle Modifies Genetic Risk for Longitudinal Cognitive Aging among Cognitively Unimpaired Individuals." *JAMA Neurology* (*Under co-authors' review*, expected to submit by August 2023)

**Xu, Y.,** Sun, Z., & Engelman, C. D. (2023). "Childhood self-reported socioeconomic status modifies the genetic risk of Alzheimer's on mid- and late-life cognitive decline in a population-based study." *American Journal of Epidemiology* (expected to submit by December 2023)

**Xu, Y.,** Jonaitis, E. M., Lu, Q., Johnson, S. C., & Engelman, C. D. (2023). "Unraveling the interaction between APOE and Non-APOE Polygenic Risk Scores on Longitudinal Alzheimer's-Related CSF Biomarkers in Three Longitudinal Studies." *Alzheimer's Research & Therapy* (expected to submit by December 2023)

**PUBLICATIONS (continued) Articles**
**Working Paper in Progress**

**Xu, Y.,** Jonaitis, E. M., Lu, Q., Johnson, S. C., & Engelman, C. D. "Integrate Rare Variants into the Comprehensive AD Genetic Risk Prediction Model."

## RESEARCH EXPERIENCE

**Research Assistant**, *UW-Madison School of Medicine and Public Health, 2020-Present.*
Under the supervision of Dr. Corinne Engelman, I conducted multiple genetic epidemiology studies on Alzheimer's, utilizing genetic and longitudinal questionnaires, cognition, and biomarker data, employing hierarchical models. This involved developing polygenic and pathway-specific polygenic risk scores to predict changes in longitudinal Alzheimer's endophenotypes (e.g., CSF biomarkers) during the preclinical stage. I also compared different methods (e.g., PRScs, LDpred, SBLUP, etc.) for constructing polygenic risk scores to predict Alzheimer's endophenotypes. Additionally, I investigated gene-gene and gene-environment interactions (using a life-course approach, environmental exposures included adherence to healthy lifestyles, childhood self-reported socioeconomic status, and macroeconomic level indicators) in Alzheimer's. Our current and future work aims to integrate rare genetic variants into common variant-informed polygenic risk score models.

**Research Assistant**, *UW-Madison Center for Demography of Health and Aging, 2019-2020.*
I assisted Dr. Jason Fletcher in conducting various studies in the field of social genomics. These studies focused on two main projects. The first project involved exploring polygenic risk scores for male pattern baldness. The second project utilized an instrumental variable approach to examine the complex relationship between early-life exposure to pneumonia morbidity and mortality, genetics, and cognition later in life. Our goal was to use instrumental variables to gain a better understanding of the causal pathways and interactions of these factors.

**Research Specialist (full time),** *USC Center for Economic and Social Research, 2018-2019.*
I assisted Dr. Titus Galama on multiple projects examining the potential interaction between childhood socioeconomic status (SES) and genetic factors in shaping later-life health outcomes. By exploring this interaction, we aimed to understand how the interplay between social and genetic factors influences health disparities and outcomes over the lifespan.

## TEACHING EXPERIENCE

**Teaching Assistant**, *USC Sol Price School of Public Policy, Fall 2018*.
I assisted Dr. John Romley with PPD 558: Multivariate Statistical Analysis. I helped write course examinations, held TA sessions to address students' questions and concerns regarding the course content, and graded exams and homework assignments.

## CONFERENCE PRESENTATIONS

Xu, Y (2023). "Childhood self-reported socioeconomic status modifies the genetic risk of Alzheimer's on mid- and late-life cognitive decline in a population-based study." Accepted for poster presentation at the Alzheimer's Association International Conference 2023, Amsterdam, Netherlands (virtual presentation).

Xu, Y (2023). "Childhood self-reported socioeconomic status modifies the genetic risk of

Alzheimer's on mid- and late-life cognitive decline in a population-based study." Accepted for poster presentation at the Society for Epidemiology Annual Conference 2023, Portland, OR.

Xu, Y (2023). "Mid-to-Late Life Healthy Lifestyle Modifies Genetic Risk for Longitudinal Cognitive Aging among Asymptomatic Individuals from the Wisconsin Registry for Alzheimer's Prevention." Accepted for poster presentation at the Wisconsin Alzheimer's Disease Research Day 2023, Madison, WI.

Xu, Y (2022). "Mid-to-Late Life Healthy Lifestyle Modifies Genetic Risk for Longitudinal Cognitive Aging among Asymptomatic Individuals from the Wisconsin Registry for Alzheimer's Prevention." Accepted for oral presentation at the Synergies for Longitudinal Conference, Madison, WI.

Xu, Y (2022). "Mid-to-Late Life Healthy Lifestyle Modifies Genetic Risk for Longitudinal Cognitive Aging among Asymptomatic Individuals from the Wisconsin Registry for Alzheimer's Prevention." Accepted for oral presentation at the Alzheimer's Association International Conference 2022, San Diego, CA.

Xu, Y (2022). "Apolipoprotein E moderates the association between Non-APOE Polygenic Risk Score for Alzheimer's Disease and Aging on Preclinical Cognitive Function." Accepted for poster presentation at the Alzheimer's Association International Conference 2022, San Diego, CA.

Xu, Y (2022). "Apolipoprotein E moderates the association between Non-APOE Polygenic Risk Score for Alzheimer's Disease and Aging on Preclinical Cognitive Function." Accepted for poster presentation at the Wisconsin Alzheimer's Disease Research Day 2022, Madison, WI.

Xu, Y (2021). "Effect of Pathway-specific Polygenic Risk Scores for Alzheimer's Disease on Rate of Change in Cognitive Function and AD-related Biomarkers among Asymptomatic Individuals." Accepted for oral presentation at the Integrating Genetics into the Social Sciences Conference 2021, Boulder, CO.

Xu, Y (2020). "Bald is Beautiful? Life course outcomes for individuals at high genetic risk for male pattern baldness." Accepted for oral presentation at the Integrating Genetics into the Social Sciences Conference 2020, Boulder, CO.

## EXTERNAL TRAINING, CERTIFICATES, AND WORKSHOPS

Novel models for longitudinal continuous outcomes workshop, Stanford University, 2022
DNA methylation analysis workshop, University of Colorado-Boulder, 2021
Statistical workshop on genomic family data, University of Colorado-Boulder, 2020
Genome-wide data analyses, Tinbergen Institute and University of Wisconsin-Madison, 2020

## GRANT SUPPORT

09/22-09/23 **Student Investigator** (PI: Corinne Engelman)
*Gene-Environment Interactions in Cognitive Decline During Preclinical Alzheimer's*
UW-Madison CDHA pilot project award, P30AG017266
Total costs: $50,000

This pilot project aims to understand how early-to-late life environments modify the genetic risk of Alzheimer's disease (AD) on later-life cognition among asymptomatic individuals. This award directly supports my dissertation research, and my responsibilities include drafting grant proposals, performing relevant analyses, and drafting the final manuscript. The results from this project will serve as preliminary data for a future R01 grant application.

## HONORS/AWARDS

UW-Madison Student Research Competition Grant, 2021, 2023
UW-Madison Rankin / Skatrud Research Award, 2022
UW-Madison Chancellor's Fellowship, 2019
UW-Madison PHS Outstanding Student Scholarship, 2019
Phi Alpha Alpha National Honor Society, inducted in 2018
Shandong University Outstanding Undergraduate Thesis Award, 2015

## PROFESSIONAL EXPERIENCE

**Part-time policy analyst**, *International Refugee Assistance Project, New York, 2017-2018.*
I conducted a detailed cost-benefit analysis of the Afghanistan Special Immigrant Visa project. My team and I then prepared a policy briefing summarizing the critical findings and implications. The briefing was promptly submitted to government leaders, offering them valuable insights and recommendations.

**Policy analyst intern**, *Fudan University PPIR Center, Shanghai, Summer 2017.*
I conducted comprehensive public performance analyses for multiple non-profit organizations, examining their operations and impact. Subsequently, I drafted a detailed performance evaluation report, providing insights and recommendations based on the findings. The report aimed to assist these organizations in enhancing their effectiveness and achieving their mission of serving the public.

## PROFESSIONAL MEMBERSHIPS

International Society to Advance Alzheimer's Research and Treatment
Society for Epidemiologic Studies
International Genetic Epidemiology Society

## ADDITIONAL INFORMATION

Nationality: People's Republic of China
ORCID: 0000-0002-2732-7199
Software: R, SAS, STATA, Arc-GIS, PLINK, GCTA, LDSC
Programming languages: R (proficient), Python (intermediate)

## REFERENCES

Upon requests.