

Yingying Lu

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Education

Ph.D. in Statistics and Data Science University of Arizona <i>Dissertation: Cell Type Deconvolution using Single-Cell RNA-Seq Data</i> <i>Advisor: Dr. Lingling An</i> Minor in Biosystem Engineering	Expected July 2023 GPA 3.95
MS. in Statistics and Operation Research Southern Illinois University Edwardsville	2016 GPA 3.9
MS. in Business Administration University of Arkansas	2012 GPA 3.45
BS. in International Economics and Trade Central South University of Forestry and Technology, China	2010 GPA 3.65

Publications and Working Papers

- Lu, Y., An, L., Taylor, M.R., & Chen, Q.M.** Loss of Protein Translation Machinery in Human Heart Failure by Dilated Cardiomyopathy or Ischemic Cardiomyopathy. Manuscript.
- Lu, Y., & An, L.** SECRET: Semi-reference based deconvolution method for estimating cell type proportion. Manuscript.
- Lu, Y., Chen, Q. M., & An, L.** SPADE: Spatial Deconvolution for Domain Specific Cell-type Estimation. bioRxiv. <https://www.biorxiv.org/content/10.1101/2023.04.14.536924v1>
- Lu, Y., An, L., Taylor, M. R., & Chen, Q. M.** (2022). Nrf2 signaling in heart failure: Expression of Nrf2, Keap1, antioxidant, and detoxification genes in dilated or ischemic cardiomyopathy. *Physiological Genomics*, 54(3), 115-127.
- Zhu, C., Gu, H., Jin, Y., Wurm, D., Freidhof, B., Lu, Y., & Chen, Q. M.** (2022). Metabolomics of oxidative stress: Nrf2 independent depletion of NAD or increases of sugar alcohols. *Toxicology and Applied Pharmacology*, 442, 115949.
- Khan, S. A., Campbell, A. M., Lu, Y., An, L., Alpert, J. S., & Chen, Q. M.** (2021). N-Acetylcysteine for Cardiac Protection During Coronary Artery Reperfusion: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Frontiers in Cardiovascular Medicine*, 1505.

Presentations

- “Causal Effects Estimation of Multiple Treatments using Observational Data”. *Joint Statistical Meeting*, Virtual Conference, August 8 - 12, 2021
- “Basic Graphics in R”, *Workshop on R from Statistical Bioinformatics Group*, The University of Arizona, April 2022
- “Cell Type Deconvolution”, *Biosystem Engineering Department Seminar*, The University of Arizona, November 2022

Honors and Awards

- Excellence in Research Award and the APSselect award by the American Physiological Society for the paper about nrf2 signaling in heart failure study. This paper was also selected as the online cover for the April 2022 issue of the *Journal of Physiological Genomics*.
- Andrew O. Lindstrum, Jr. Memorial Award, March 2016
- Project Management Certificate Program Award, May 2012

Research Experience

- R.Ken Coit College of Pharmacy, University of Arizona, Tucson, Arizona**
Graduate Research Assistant January 2020 - Present
- Leveraged bioinformatic tools to accurately measure transcript and gene abundances.
 - Conducted analysis of patient data to investigate the impact of Nrf2 transcription factor or antioxidant and detoxification genes relative to oxidative stress, utilizing bioinformatic tools and functional analysis to reveal underlying biological insights.
 - Managed and analyzed clinical data to compare different heart diseases and identify risk factors in heart failure.

- Designed and executed complex statistical analyses in single cell biology and cell type deconvolution.
- Effectively communicated research findings to scientific and non-scientific audiences, conducted statistical analyses for lab results, assisted with grant proposals, and trained pharmacy students on software.

Teaching Experience

University of Arizona, Tucson, Arizona

Teaching Assistant

August 2017 - Dec 2019

- Designed and delivered engaging undergraduate courses in College Algebra, Basic Statistics, and Biostatistics, catering to approximately 35 students per semester.
- Conducted assessments and evaluations of student learning, including administering quizzes and exams.

Southern Illinois University Edwardsville, Edwardsville, Illinois

Teaching Assistant

August 2013 - May 2016

- Designed, implemented, and evaluated an instructional plan, including lectures and student assessments.
- Provided technical training in software such as Minitab and WebAssign for statistical/mathematical assignments.

Skills

Statistical/computing software: R/Bioconductor, Python, SAS, SQL, JMP, EViews, Minitab

Bioinformatics programming and software: Cytoscape, QIIME2, QIAGEN IPA, Picard, BLAST

Technical: High Performance Computing, MS Office, LaTeX, R-markdown, Adobe Illustrator

Data Analysis: Statistical modeling, Integrative analysis, Next generation sequencing pipelines, Causal effects estimation, Machine learning, Metagenomics data analysis, Single-cell RNA-Seq analysis

Working Experience

Behr Process Corporation, Santa Ana, California

International Operational Intern

June 2012 - August 2013

- Collaborated with the product manager to conduct comprehensive analysis of product information for targeted countries, resulting in the development of effective positioning strategies to promote international market penetration.
- Aided marketing manager in conducting market assessments, researching and analyzing data to develop potential business opportunities, and contributing to the creation of a market design for the first paint store in China.

Procter & Gamble, Fayetteville, Arkansas

Business Analyst Intern

August 2011 - May 2012

March 2011 - May 2011

- Built strategic development plan for P&G brands by analyzing data from Walmart International countries.
- Analyzed logistic data among different countries, and designed scorecards to identify countries with potential risks.
- Conducted product research in retail stores and reconciled product information for supporting marketing planning.
- Researched, analyzed, and recommended global shopper information to senior management.

Walmart Stores, Inc., Bentonville, Arkansas

International Real Estate Leadership Intern

June 2011 - August 2011

- Led Latin American country team to meet real estate goals by analyzing data, identifying issues, and providing recommendations to international project leaders prior to executive approval.
- Collaborated with other departments to evaluate and streamline operational processes.
- Analyzed business objectives and customer needs, managed projects to ensure approved requests being achieved.