

Tuo Liu

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Tucson, AZ

EDUCATION

University of Arizona

Ph.D. in Environmental Hlth Sci, minor in Biostatistics, graduate cert. in stats. and data science
GPA: 4.00 / 4.00

Tucson, AZ
Sep 2021 - present

SELECT RESEARCH PROJECTS

The Arizona Healthcare, Emergency Response, and Other Essential workers Surveillance (AZ HEROES) Study

Research Associate, Dept of Community, Environment & Policy, University of Arizona

Jul 2023 - Present

- Aims: Characterizing differential proteome by long-Covid status and the change over time
- data source: AZ HEROES
- Research question: Is there a difference in the proteomic profiles between long-Covid cases vs. normal participants? Is the trend of proteome over time affected by covariates such as lifestyle factors, environmental exposures?
- Contribution: statistical analysis and manuscript composition

Urinary Metabolomics in Male & Female Firefighters: differential metabolome by fire exposure

Research Associate, Dept of Community, Environment & Policy, University of Arizona

Advisor: Drs. Jefferey Burgess & Melissa Furlong

Sep 2021 - Present

- Aims: Characterizing differential metabolome by Hispanic ethnicity, before and post fire exposure
- data source: Fire Fighter Cancer Cohort Study (FFCCS), FEMA
- Contribution: **lead** statistical analysis, **built** metabolomics analytical pipeline and **drafted & published** manuscript

Urinary Metabolomics in Prostate Cancer Patients: differential metabolome by prostate cancer risk

Research Associate, Dept of Community, Environment & Policy, University of Arizona

Advisor: Drs. Ken Batai & Melissa Furlong

Jun 2022 - Present

- Aims: Characterizing differential metabolome by prostate cancer risk among prostate cancer patients
- data source: Cancer Center, University of Arizona
- Contribution: lead statistical analysis, draft manuscript

DATA SCIENCE & ML PROJECTS

[Arizona Pesticide Use](#)

Oct 2022

- Language & Pkg: R & Shiny, Flexboard, Plotly, mapview
- Visualized the pesticide usage in the State of Arizona (1992-2016) using mapview & Plotly package in R

[Personal Expense Tracker](#)

Dec 2022

- Language & Pkg: Python & Streamlit, Plotly
- Database: NoSQL by deta
- Visualization: Sankey chart
- Visualized personal expense

PUBLICATION

- Evaluating Changes in Firefighter Urinary Metabolomes After Fires: An Untargeted, High-Resolution Approach, 2023
- Differential Metabolic Profiles by Hispanic Ethnicity Among Male Tucson Firefighters (under review)
- Per- and polyfluoroalkyl Substances (PFAS) and microRNA: an epigenome-wide association study (under review)
- Evaluating Differential Metabolic Profile by Wildland-Urban-Interface Fire Exposure

SKILL, AWARDS and INTERESTS

- Technical: Graduate Certificate in Statistics and Data Science, Proficient in R & Python
- Awards: PhD president-named scholarship (\$10,000, 2021); One-health Research Scholarship ((\$50,000, 2023)
- Interests: Weightlifting, Fishing, Coding, Data Visualization