

Shengqiang Chen

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EDUCATION

Doctoral Student The University of Memphis

Epidemiology and Biostatistics (concentrate on Biostatistics)

2023 August- Present

M.S. The University of Memphis

Data Science

2021-2023 May

SKILL SET

Mate-analysis: Pairwise Mate-analysis and Network Mate-analysis

Statistical Analysis: Skilled and have 3 years of experience

Machine Learning: Linear / Logistic Regression, Regression Trees, Classification Trees, Random Forests, Bagging Trees, Boosting Trees, Generalized Additive Model, Neural networks, K-means Clustering, and Hierarchical Clustering.

Data Analytics Tools: SAS, SQL, Python, R, Excel

Language: Fluent in English and Mandarin Chinese

EMPLOYMENT

Research Assistant	The University of Memphis	<i>2022-Present</i>
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- Statistics analysis
- Network meta-analysis
- Preparing manuscripts and report

Internship	The University of Tennessee Health Science Center	<i>2025.06- Present</i>
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- Statistical analysis
- Preparing manuscripts and report

PROJECT EXPERIENCE

- *Network Metanalysis Comparing Yoga, Resistance Training and Aerobic Exercise on Heart Rate Variability in Healthy and Patients with Cardiovascular Disease.*

We searched published journal articles from PubMed, Embase and Scopus about Yoga and Other Non-pharmacological Therapies impacting RSMMD. After screening and coding, I finally got the rank of those therapies and settled some controversies issues.

- *A Bayesian Framework for Correlated Continuous Outcomes Using Individual and Aggregate Data.*

We propose a Bayesian network meta-analysis (NMA) framework for jointly modeling correlated continuous outcomes, incorporating both individual participant data (IPD) and aggregate data (AD). The method addresses common challenges in clinical and epidemiological research, including partially available IPD and correlated outcomes. Under the Bayesian framework, our approach borrows strength across different treatments and correlated outcomes while addressing certain feature-specific treatment effects based on relevant information available in both data levels. Implemented in RJAGS, our method enables robust evidence synthesis for complex mixed-data problems. We use simulations to assess the proposed approach with respect to estimation bias and precision in comparison with findings from standard (NMA) approaches.

• *The Association between Bronchial hyperresponsiveness and Respiratory traits over time.*

We test the association between Bronchial hyperresponsiveness (BHR) and asthma, lung function, airway inflammation and remodeling over time. Basic structure of statistical modeling is generalized linear regressions with repeated measures.

• *Sample Selection from Big Data by Trimmed Space-Filling Base on PCA (My Master's degree project)*

This project focuses on leveraging machine learning algorithms to analyze large-scale datasets, aiming to uncover patterns and relationships within the data. The Trimmed Space-filling sampling on PCA is a method for selecting a subset of data points by applying a space-filling scheme on the principal components.

MANUSCRIPTS IN PERPARATION

1. Indranill Basu-Ray, Suprakash Mandal, **Shengqiang Chen**, Amy Huynh, Rishabh Goyal, Punit Misra, Sudip Bajpeyi, John Jefferies, Kevin Heist, Sylvain Laborde, Charles H Fraga, Hongmei Zhang, Network Metanalysis Comparing Yoga, Resistance Training and Aerobic Exercise on Heart Rate Variability in Healthy and Patients with Cardiovascular Disease.
2. **Shengqiang Chen**, Hongmei Zhang, A Bayesian Framework for Correlated Continuous Outcomes Using Individual and Aggregate Data.

