Postdoctoral Fellow

Position Summary
The Zhang Lab at Institute for Informatics, Data Science, and Biostatistics (I2DB) focuses on developing and applying innovative causal machine learning to electronic health record (EHR) and claims databases to support clinical and regulatory decision-making. This position is an unparalleled opportunity for the right applicant to make an impact on the future of health care by building ML/AI algorithms to unleash the potential of big data in healthcare. The postdoctoral research associate will take part in challenging projects such as 1) building unsupervised learning models to identify patient subpopulations for precision medicine, 2) developing time-series deep learning and Transformer-based models for disease risk prediction and individualized treatment effect estimation from longitudinal patient trajectory, and 3) developing federated learning algorithms for causal inference across multiple institutions. This role will also include collaboration with both internal and external clinical researchers to apply methods for generating real-world evidence from EHR and claims data, such as with the Observational Health Data Sciences and Informatics (OHDSI) collaborative network.

Information on being a postdoc at Washington University in St. Louis can be found at
https://postdoc.wustl.edu/prospective-postdocs-2/.

Primary Duties & Responsibilities
- Develop, implement, and evaluate machine learning and deep learning models to assist the research team in addressing clinical questions.
- Write SQL queries to extract relevant data from large-scale databases.
- Preprocess data for model training, including imputing missing values, removing outliers, characterizing dataset, and any other relevant data wrangling.
- Search and review literature in medicine, computer science, and statistics for related research projects.
- Attend weekly lab meetings and meetings with the PI, the collaborators, and the students as needed.
- Performs other duties as assigned.

Required Qualifications
- A PhD in one of the following quantitative disciplines: computer science, statistics, biomedical informatics, epidemiology, biostatistics, engineering, or other related quantitative fields.
- Demonstrated experience working on projects related to deep learning, representation learning, federated learning, causal inference or other machine learning and artificial intelligence-related modeling.
- Track record of scientific productivity, e.g. a first author paper, or a demonstrable contribution to a large project.
- Excellent communication and writing skills.

Preferred Qualifications
- Experience interacting with EHR and claims database.
- Knowledge on causal inference and its application in medicine.
- Healthcare-related research experience.

Applicant Special Instructions
Please send the following documents to Dr. Linying Zhang at: linyingz@wustl.edu.

- A cover letter highlighting research interests and career goals
- CV
- 2-3 publications or writing samples
- Contact information for three references

Pre-Employment Screening
All external candidates receiving an offer for employment will be required to submit to pre-employment screening for this position. The screenings will include criminal background check and, as applicable for the position, other background checks, drug screen, an employment and education or licensure/certification verification, physical examination, certain vaccinations and/or governmental registry checks. All offers are contingent upon successful completion of required screening.

Benefits Statement
Washington University in St. Louis is committed to providing a comprehensive and competitive benefits package to our employees. Benefits eligibility is subject to employment status, full-time equivalent (FTE) workload, and weekly standard hours. Please visit our website at https://hr.wustl.edu/benefits/ to view a summary of benefits.

EEO/AA Statement
Washington University in St. Louis is committed to the principles and practices of equal employment opportunity and especially encourages applications by those from underrepresented groups. It is the University's policy to provide equal opportunity and access to persons in all job titles without regard to race, ethnicity, color, national origin, age, religion, sex, sexual orientation, gender identity or expression, disability, protected veteran status, or genetic information.

Diversity Statement
Washington University is dedicated to building a diverse community of individuals who are committed to contributing to an inclusive environment – fostering respect for all and welcoming individuals from diverse backgrounds, experiences and perspectives. Individuals with a commitment to these values are encouraged to apply.