

Ruoqing Zhu

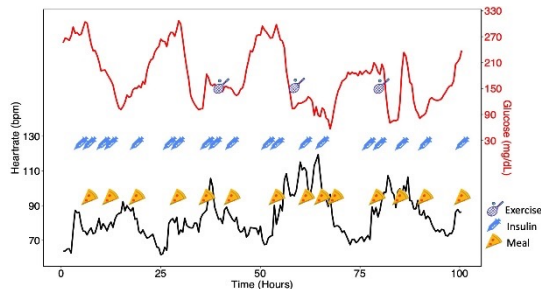
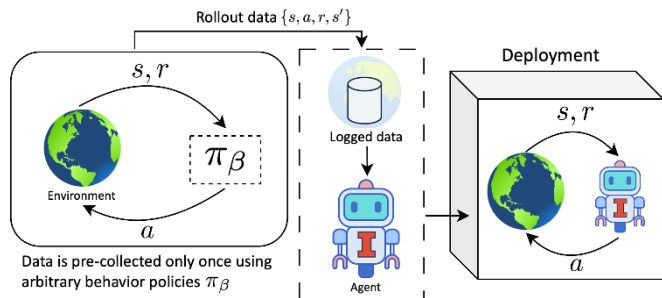
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I use machine learning (ML) approach for personalized medicine. The goal is to develop tailored healthcare interventions to an individual's unique genetic makeup, lifestyle, and environmental factors, thereby optimizing treatment efficacy and minimizing adverse effects. Targeted, individualized care can be much better than "one-size-fits-all".



Keywords

Precision nutrition, heterogeneity, machine learning, individualized decision making, high-dimensional data, survival analysis, infectious diseases, diagnosis, cancer

Research Interests

- **Precision medicine** in single and dynamic decision settings
- **Machine learning** in general: random forests, survival analysis, dimension reduction, high-dimensional data, optimization
- **Biomedical applications:** sepsis, food and nutrition, infectious disease, cancer genetics/genomics, medical device, diagnosis

Current Projects

- Dynamic treatment regime and reinforcement learning with unobserved confounders, budget/toxicity constrains, uncertainty quantifications
- Precision nutrition with microbiome, metabolites and metagenomics
- Understanding heterogeneous effects of vaccine
- Endotyping and prediction of sepsis, with treatment strategy discovery

Interest Areas for Collaboration/Future Work

I am continually interested in developing new statistical ML methods to address real-world problems that lack rigorous analytical tools. I am especially drawn to scenarios where human decisions interact with both the host and environment, necessitating more intelligent, dynamic decision-making.