Job Title: Research Fellow
Appointment: Research

Duties & Responsibilities:
The Centre for Quantitative Medicine under the auspices of the Office of Clinical Sciences at Duke-NUS Graduate Medical School, Singapore, is looking for a postdoctoral fellow, to work primarily on statistical methods for dynamic treatment regimes, adaptive clinical trial designs, machine learning and related topics. There will be no teaching requirement. This position will be a 1-year contract, with a possible extension. The candidate’s responsibilities will include:

- Assist and lead in methodological development focusing on statistical methods for dynamic treatment regimes, under the supervision of the principal investigator (PI)
- Assist and lead in manuscript preparation under the supervision of the PI

Abstract:
Dynamic treatment regimes are decision rules about recommended treatments based on an individual patient’s evolving treatment and covariate history. These regimes are particularly useful for managing chronic health conditions, and fit well into the larger framework of personalized medicine in a time-varying set-up. Once developed, they can be employed to enhance the sequential clinical decision-making used in practice. In recent years, there has been a surge of interest in making these decision rules evidence-based or data-driven; this is exactly where statistics and data science play key roles. Furthermore, the problem of constructing data-driven dynamic regimes has a striking similarity with the problem of reinforcement learning, a branch of machine learning, where a learning agent (e.g. a robot) learns to choose optimal actions by interacting with its environment. In fact, many estimation methods in the area of dynamic regimes are adapted from classical reinforcement learning algorithms. In the medical domain, the focus lies in efficient estimation of, and valid inference on, dynamic regimes from either longitudinal observational data (e.g. cohort studies, hospital registries) or data from sequentially randomized clinical trials. A related research thread lies in making the associated sequentially randomized trials more adaptive and efficient. Many of the methodological problems are novel and non-standard. The proposed work will develop design, estimation and inference tools – assimilating ideas from statistics, optimization, and machine learning.

Job Requirements:
- A PhD in Statistics, Biostatistics, Computer Science (Machine Learning, Artificial Intelligence), Mathematics or related quantitative field
- Demonstrated ability in methodological research and statistical programming (R, Matlab)
- Excellent written and verbal communication skills in English

Applicants must email a letter of application, curriculum vitae, and contact information for three references to Ms. Tan Hui Min: huimin.tan@duke-nus.edu.sg

Relevant Web sites:
About the School: http://www.duke-nus.edu.sg
About the PI: https://www.duke-nus.edu.sg/content/chakraborty-bibhas, https://blog.nus.edu.sg/bibhas/