Center for Data Science in Emergency Medicine Data Science Internship

Position Summary: We are seeking an enthusiastic data science intern who is interested in the application of statistical, mathematical and computational techniques to solve real-world problems in medicine and healthcare. This internship is a collaboration between the Whiting School of Engineering and the Department of Emergency Medicine at Johns Hopkins School of Medicine. The student is expected to work collaboratively with physicians and data science research faculty and staff within the Center for Data Science in Emergency Medicine (CDEM cdem.jh.edu). CDEM is focused on the improvement of patient outcomes using data-driven methods that include large-scale electronic health record (EHR) data extraction, EHR data wrangling, research database building, machine learning, optimization modeling and advanced data visualization techniques. Current projects include acute kidney injury prediction and prevention, and improvement of respiratory infection management (including Covid-19) through machine learning and provision of EHR-integrated decision support for emergency clinicians. The data science intern will be directly engaged with the data development pipeline used to support and drive these projects. Their work will be critical to the success of the team.

The student can expect an experience similar to a lab rotation, as well as exposure to operational and clinical workflows relevant to translational medical research. Before arrival, each data science intern will receive multiple papers related to their assigned project. The goal of the student's project and its relationship to other work in the area will be discussed. The student will be provided detailed guidance needed to conduct data analysis and will work under the supervision of an experienced senior programmer analyst at CDEM.

The internship will start as soon as possible and is expected to last 6 months. There is a possibility of extension depending on performance of the student. Weekly hours are negotiable.

Benefits for the Student: This internship is ideally suited to students with strong analytic skills and an interest in pursuing a medically oriented career in industry or academia. Interns will acquire theoretical and practical training in advancing the practice of medicine and healthcare delivery using data science and systems engineering – with a particular focus on EHR data. The data science intern will be embedded within CDEM, a Center that includes experts from the fields of biomedical engineering, data science and mathematical ecology - all focused on the common goal of improving care delivery for emergency department patients. Their team has created important cross-disciplinary partnerships and developed novel tools that enhance the practice of emergency medicine, including through an improved approach to emergency department triage, more accurate identification of risk factors for acute kidney injury and better risk-stratification of patients with infectious disease. Experiences gained will be highly informative and advantageous to students who plan to pursue further training (Masters, PhD or MD) or work in this arena after graduation.

Compensation: Rate will depend on student availability and project needs

Required Education: Undergraduate or master students in computer science, mathematics, management sciences, or relevant fields. No previous research/industry experience required.

Desired knowledge, skills, and abilities:
- High-level communication skills
- Strong critical thinking and analytical reasoning skills
- Proficiency with multiple programming languages (including R, Python and SQL)
- Proficiency in or eagerness to learn cloud-based computing skills
- Ability to execute assigned project tasks within established schedule
- Sound documentation skills (writes and communicates clearly and concisely)
- Prior experience in healthcare-oriented research desired but not necessary

Application Process: Send your CV, cover letter (describing relevant course work, research experience, and/or future plans about industry/research career) and one letter of recommendation/professional reference contact info.
Email applications to **Tracy Marshall: tmarshall@jhu.edu**
Subject line: CDEM Internship application

Application deadline: May 10, 2021

Anticipated start date: As soon as possible/negotiable (duration appx 6 months)

Short project descriptions:

Research Project	Risk of Developing Severe Complications from COVID-19 in Children
Description	In this project, predictive machine learning and traditional statistical models will be applied to identify pediatric patients at risk of developing severe complications from SARS-CoV-2 infection. The student will learn methods and processes required to gain insights from the EHR.
Tasks	– Familiarizing oneself with EHR data and producing descriptive analytics of the cohort (including plots, figures, and tables). – Translating existing data processing, normalization and modeling code to new projects. – Assisting with applying computational models and displaying output in accordance with clinician user input.
Required Skills	Strong programming and analytical skills. Databases experience and interest in application of data science methods of healthcare problems desired.
Anticipated Start Date	As soon as possible/negotiable
Duration of Project	Appx 6 months with a possibility to extend