
PATRICK RYAN,
DAVID MADIGAN

ryan@ohdsi.org

david.madigan@columbia.edu

Required Skills:

(List skills needed) – Java, model will be R objects, Web (HTML / JS / CSS), Postgres, Oracle, SQL Server

Preferred Team Communications:

Skype, WebEx / GoToMeeting

Data Sources:

Need a model output from the OHDSI PatientLevelPrediction framework. It needn't connect directly to patient-level observational data, since the user input would provide this content.

Other Items:

Project has time zone flexibility. Mentors and students will determine a good time for virtual meeting

Team Info:

Needs a Developer, Analyst, Tester, Project Manager. Allows more than one team of 4-6 members.

CONSUMER-FACING APPLICATION FOR PATIENT-LEVEL PREDICTION

The OHDSI Patient-level Prediction framework allows for learning and evaluating models that can predict future health outcome risk based on baseline characteristics observed in an observational database. A common example is learning a large-scale logistic regression model, which provides a set of covariates and coefficients that together can estimate a person's risk. These models may involve 100s or 1000s of variables to provide the most precise probability estimate, but often an approximate estimate can be obtained using only a few dozen variables. In addition to applying these models within EHRs, as part of a clinical decision support process, as has been done by others (including at GaTech), there is a need to build consumer-facing applications that allow a patient user to answer questions in sequence and obtain their predicted probability (with associated CI for uncertainty bounds), until the user is satisfied with the precision obtained or has fully completed all questions needed for the given model. Developing such an application requires appropriate UI design to translate baseline covariates into interpretable questions, and statistical modeling to estimate the variable for a prediction estimate given incomplete responses. With such a tool in hand, it could be consistently applied to many different prediction models that arise from the OHDSI PLP framework.

This could be multiple team projects, each focused on a different specific instance of a prediction problem, though it would be highly desirable to not build a bespoke solution for one model, but rather an app that can take any model input to produce the risk calculator.

PROJECT OBJECTIVES

Develop a consumer-facing application to provide a 'personalized risk calculator' based on the model output from an OHDSI PatientLevelPrediction analysis.

SUCCESSFUL PROJECT

To Be Discussed

Intellectual Property: All work should be made available through OHDSI on github with Apache 2 license to promote general use.