

Computational Social Science: Slidify/shiny demo

lanning

August 23, 2015

title: “Assessing skills in Computational Social Science” author: “Kevin Lanning” highlighter: highlight.js
output: pdf_document job: null knit: slidify::knit2slides mode: selfcontained hitheme: tomorrow subtitle: A
simple tool to illustrate Shiny Apps in R framework: io2012 widgets: [] —

The Venn Diagram model of Data Science

<img height='204' src='

http://static1.squarespace.com/static/5150aec6e4b0e340ec52710a/t/51525c33e4b0b3e0d10f77ab/1364352052403/Data_Science_VD.png />

In an early lecture, the Hopkins/Data Science team described Data Science in a Venn diagram as lying at the intersection of three domains of “Math and Statistics Knowledge”, “Hacking Skills”, and “Substantive Experience.” This model has substantial intuitive appeal and pedagogical value. But as a representation of the field of Data Science, it has important limitations.

Two limitations of the model

The most important limitation of the model is that, work in data science can have no impact if it is not shared, hence, *communication skills* (e.g., writing) are, together with hacking, statistics, and substance, critical for the Data Scientist.

A second limitation is that the model implicitly treats the requisite skills as discrete (present-absent), rather than *continuous dimensions* on which the skills of persons or teams might be assessed.

Data Science ~ (Stats, Computing, Substance, Communication)

If skills in math, hacking, substance, and writing are continuous, and Data Science requires these and only these skills, then it is implied that expertise in Data Science is given by a function such as that specified above.

It is beyond the scope of this assignment to empirically develop this equation, but I will speculate that the model is not a simple additive one, for some minimum level of skill is needed in each of the four areas. That is, persons and teams which don’t have at least a minimum level of skill in each cannot make important contributions to Data Science.

Assessing skills in Computational Social Science

In the present application, I apply this logic to a simple tool for assessing the capacities of individuals and teams in one area of Data Science, namely, Computational Social Science. The tool asks individuals to rate themselves on the four skills, then (a) plots the response and (b) provides an assessment/recommendation.

It is believed that tools such as this could ultimately help build effective teams of scholars and reviewers in Computational Social Science. The code and application may be found at the links provided below:

<https://github.com/kevinlanning/shinyapp1> <https://kevinlanning.shinyapps.io/ComputationalSocialScienceRating>