Network reconstruction using computational algebra and gene knockouts

Matthew Macauley[1]

[1] *School of Mathematical and Statistical Sciences, Clemson University, Clemson, SC 29634-0975*

`macaule@clemson.edu`

There are some beautiful theoretical results about how to reverse-engineer a biological network from time-series data using computational algebraic techniques. Of course, things never work as well in practice, due to issues such as noise, discretation, and scalability. In this talk, I will discuss an ongoing project about how to do this using gene knockout data, challenges that arise, and how you can help. In particular, I will share a number of open-ended ideas about both the theoretical and applied problems that arise from this work.