Announcements 3/6

• Read Angermueller et al. (2016)
  – Deep learning for computational biology
  – Can skim the image analysis sections
• Optionally read Ward and Kellis (2012)
  – Interpreting noncoding genetic variants
• Optionally read Zhou and Troyanskaya (2015)
  – DeepSEA
• HW2 due Thursday
  – Track your late days, see policy on website
Midterm study guide

• Midterm on Tuesday, March 13 in class
• No printed materials allowed
• No calculations
• Covers material through Thursday’s lecture (epigenetics, Gaussian process, PIQ, and ROC curves but not non-coding variants and deep learning)
Midterm study guide

• Content includes (but is not limited to) material from lecture and required reading:
  – Bailey and Elkan (1995)
  – Lawrence et al. (1993)
  – Elemento et al. (2007)
  – Sherwood et al. (2014)
  – Lever et al. (2016)

• Optional reading will also be helpful, provides background, details, and motivation not written in lecture slides
Midterm study guide

• Focus on terms, concepts, strengths/weaknesses, algorithmic strategies
  – Why or in what cases would we use one method or experimental technology instead of another?
  – How does method X compare to method Y and what are the unique advantages of each?
  – What is important concept Z (e.g. mutual information)?
  – What does a method optimize? How does it converge?
  – What assumptions does a method make?
  – How does a method implement important concepts and strategies?
  – What do we need to consider when analyzing a particular type of data?
Midterm study guide

• Example questions
  – What different assumptions to the MEME OOPS and ZOOPS models make?
  – Which motif-finding algorithm is best if the user wants to account for the probability a motif was generated by the background distribution?
  – What is FWER and what does it measure?
  – Draw an example of a dependency among two continuous variables that could be detected with mutual information but not Pearson’s correlation.
  – Why is DNA methylation status valuable when interpreting gene regulation?