

What is genomic data science?



Steven Salzberg

Biology

Statistics

Genomic Data
Science

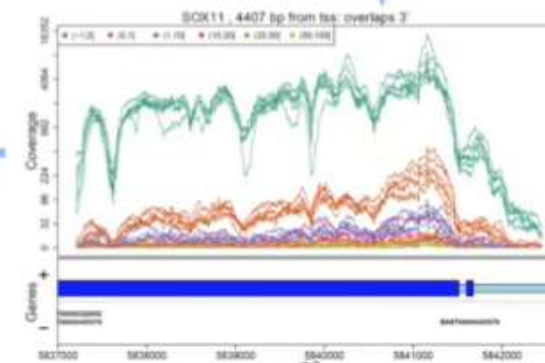
Computer Science





TACAAAATCA GATCGATCG
AGATCAGTC

TACAAAATCAGATCGATCGAGATCAGTC



$$g(Y_{ij}) = \alpha(l_j) + \beta(l_j)X_i + \sum_{k=1}^K \gamma_k(l_j)W_{ik} + \varepsilon_{ij}$$





Galaxy

Bioconductor

experimental design





TACAAAATCA GATCGATCG
AGATCAGTC

TACAAAATCAGATCGATCGAGATCAGTC



Galaxy

Bioconductor

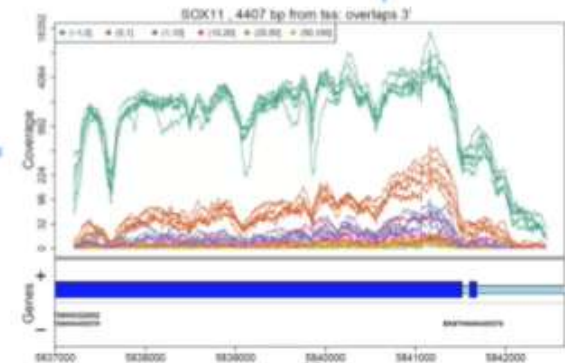
alignment &
assembly

statistics & machine learning

Galaxy

Bioconductor

$$g(Y_{ij}) = \alpha(l_j) + \beta(l_j)X_i + \sum_{k=1}^K \gamma_k(l_j)W_{ik} + \varepsilon_{ij}$$



software development

↑

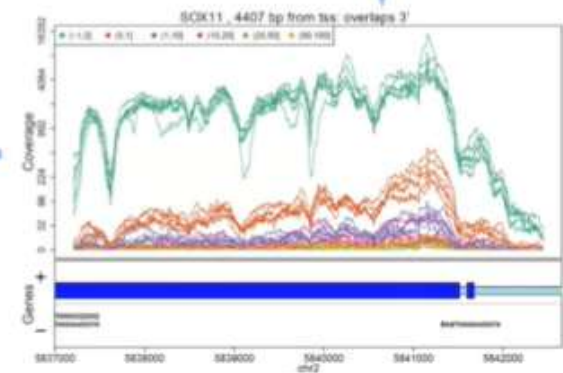




population genomics



$$g(Y_{ij}) = \alpha(l_j) + \beta(l_j)X_i + \sum_{k=1}^K \gamma_k(l_j)W_{ik} + \varepsilon_{ij}$$





$$g(Y_{ij}) = \alpha(l_j) + \beta(l_j)X_i + \sum_{k=1}^K \gamma_k(l_j)W_{ik} + \varepsilon_{ij}$$



integrative genomics

