

Big data analytics in bioinformatics

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Propositions belonging to the thesis
“Big Data Analytics in Bioinformatics”
Alexander G. B. Grønning, 28th August 2020

1. The production and accumulation of data have led to a big data era – an era where researchers have unprecedented opportunities for learning about biology via bioinformatic analyses of the various and large datasets. (this thesis)
2. The advent of big data and improved computational power have promoted the rise of systems biology, a field that seeks to understand organisms and cells in a holistic manner and cellular events, such as pathways, subprocesses and molecular interactions, in terms of mechanisms. (this thesis)
3. With big data comes big responsibilities - how can the information contained in these big data sets be analyzed and understood in an efficient and meaningful way? And how can we use this information to learn about biology and possibly aid the development of treatments for various diseases? (this thesis)
4. The collaboration amongst and across scientific fields is essential, as the bioinformatic solutions always need guidance from biologists and medical staff whose expert knowledge serves as important feedback for the ongoing endeavor of improving the data driven models and their predictive capabilities. (this thesis)
5. The scientific contributions of this thesis include novel biological insights, new bioinformatic methods and freely available tools that can be readily applied to biological data. (this thesis)
6. Collaborations among bioinformaticians and biomedical researchers is a fruitful endeavor that provides biologically and medically relevant discoveries. (valorization)
7. “Look deep into nature, and then you will understand everything better.” (Albert Einstein)
8. “Prediction is very difficult, especially about the future.” (Niels Bohr)
9. “Practice without theory is blind. Theory without practice is sterile.” (Karl Marx)
10. “Success consists of going from failure to failure without loss of enthusiasm.” (Winston Churchill)