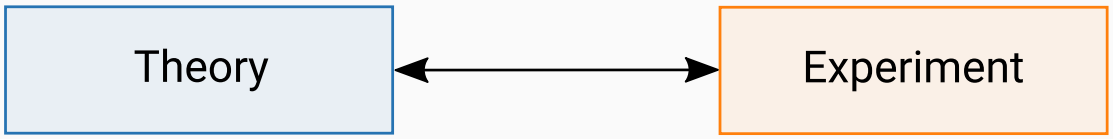
Online CDS 101 *Introduction to Computational and Data Sciences*

What are the computational and data sciences?

Computation

Modes of science



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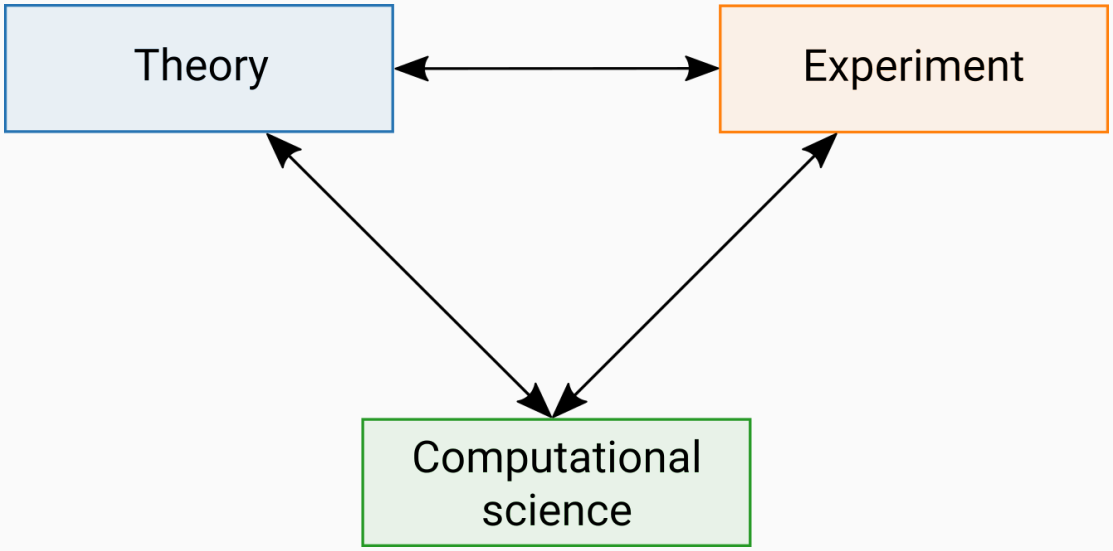
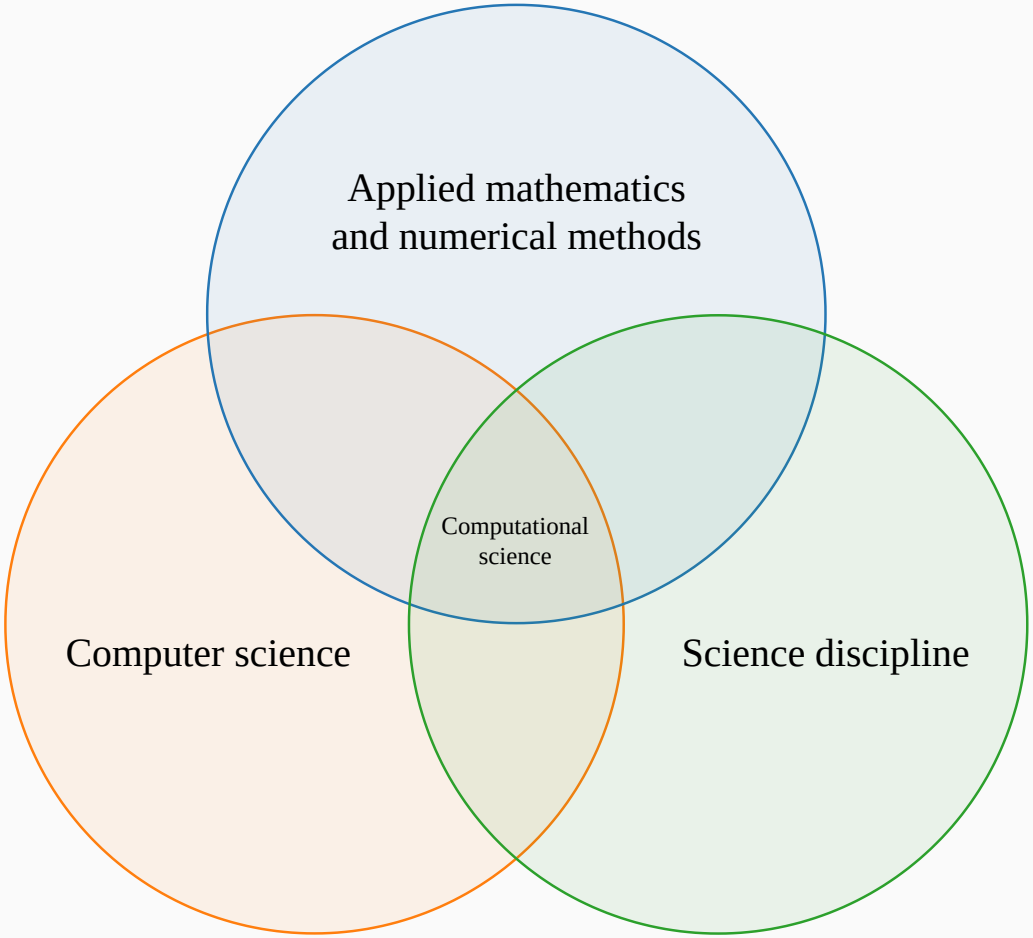
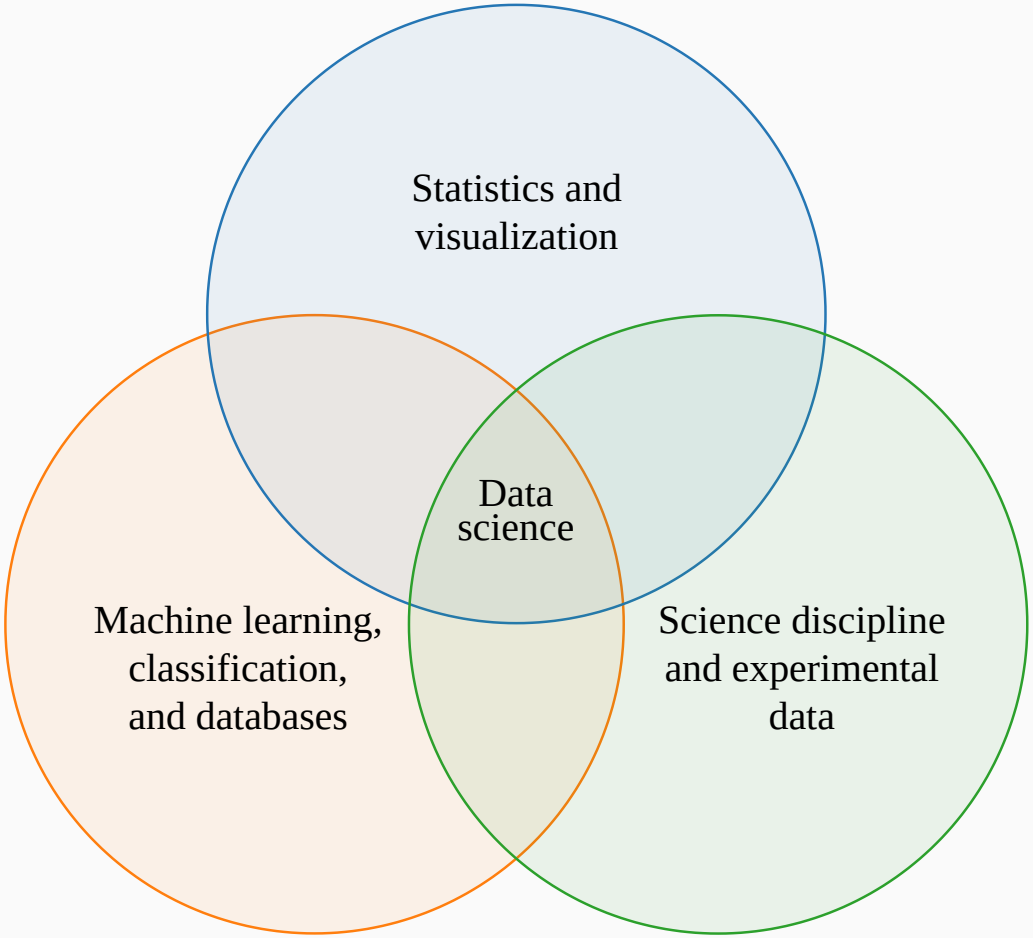


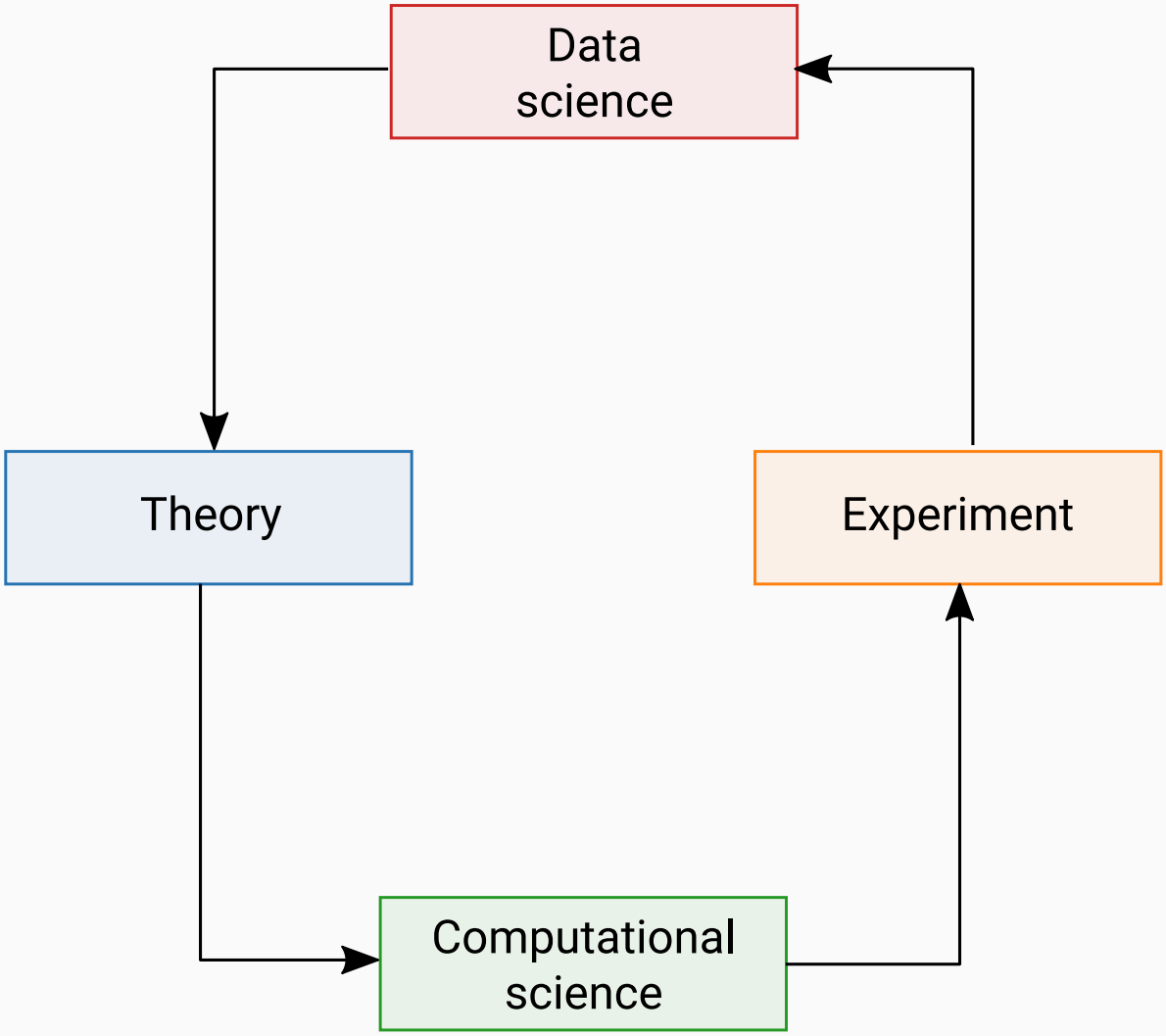
Defining computational science



Defining data science



Computational and data sciences



Big data looms

> *Big data [refers to] data sets that are so big and complex that traditional data-processing application software [is] inadequate to deal with them. Big data challenges include capturing data, data storage, data analysis, search, sharing, transfer, visualization, querying, updating, [and] information privacy [...] There are a number of concepts associated with big data: originally there were 3 concepts volume, variety, velocity. Other concepts later attributed with big data are veracity (i.e., how much noise is in the data) and value.*
>
> — Wikipedia

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- A large chunk of work in the computational and data sciences involves applying a series of data transformations in a certain order

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- Data science methods applied to other fields: medicine, humanities, political science, law, and the list goes on
- Researchers in the computational and data sciences often need to communicate results to non-experts, which requires effective visualizations and developing the ability to write and present a clear and compelling story

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- Focus is on the tools, methods, and practices within *data science* category
    - If you also want to be introduced to the *computational science* side of things, consider taking CDS 130!

Main topics

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- Special topic: basics of web scraping

Credits

License

Acknowledgments

Content adapted from the Lecture 1: The Computational and Data Sciences slides by John Wallin.