

Intelligence at Fingertips

Enabling tools and Methods

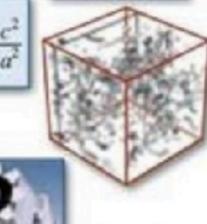
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New Paradigm

Science Paradigms

- Thousand years ago: science was empirical describing natural phenomena
- Last few hundred years: theoretical branch using models, generalizations
- Last few decades:
 a computational branch simulating complex phenomena
- Today: data exploration (eScience) unify theory, experiment, and simulation
 - Data captured by instruments or generated by simulator
 - Processed by software
 - Information/knowledge stored in computer
 - Scientist analyzes database/files using data management and statistics







Enabling Tools and Methods

Data Storage
Structured
Unstructured
Streaming

Data Analysis
Statistical
Algorithmic

Data Visualization
Interactive
Realtime

Version Control Package Manager

Prototyping

Cloud Platform

Data Science as a Service

Algorithm as a Service

Enabling Tools and Methods

Data Storage
PostGres
MongoDB
Pipeline DB

Data Analysis R Python, Scala Data Visualization
D3,js, Bokeh,
Shiny
ggplot2

Git Anaconda

Heroku

Cloud Platform
AWS, Azure, HANA
Alexa, Google Now,