FUTURE OF TALENT INSTITUTE

MEMBER RESOURCES

A Primer On Artificial Intelligence

August 2017

Exclusively for Future of Talent Institute Members

What is Big Data?

- **Big data describes the large volume of data – both structured and unstructured – that we see and use every day.**
- **Structured data is the data that we can put into a spreadsheet. It is data we can add, subtract, multiply and divide. It is data we can tabulate, use to create reports and provide survey results.**
- **Unstructured data is usually made up of words – words in a resume, books, papers and the words we speak. Anything we cannot manipulate like a number or analyze using traditional database tools.**

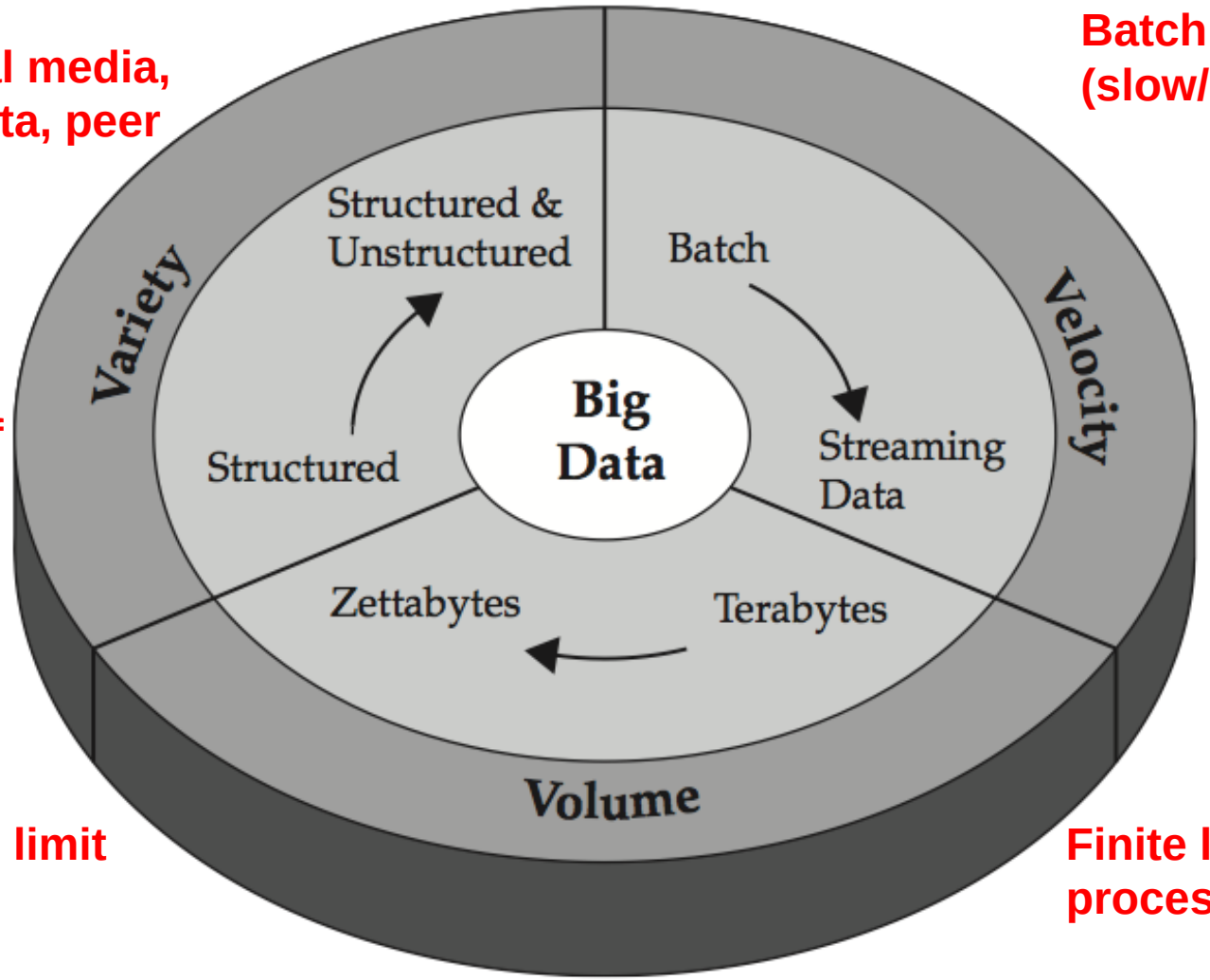
All Artificial Intelligence & Analytics Are Based on Big Data

UNSTRUCTURED

Resumes, social media, performance data, peer reviews

STRUCTURED

Degrees, GPA, Years of Experience



Batch processing (slow/periodic)

Real time processing & analysis (fast)

No real limit

Finite limit we can process

What is Artificial Intelligence?

- An umbrella for all the sub-technologies such as algorithms, machine learning, deep learning, etc.
- Any devices that perceives its environment and takes actions that maximize its chance of success at a goal is considered "intelligent."
- Technology that takes in huge amounts of information from a specific domain (e.g. HR) and uses it to make a decision in a specific case (e.g. who to hire) in the service of a specified goal (e.g. to maximize productivity).

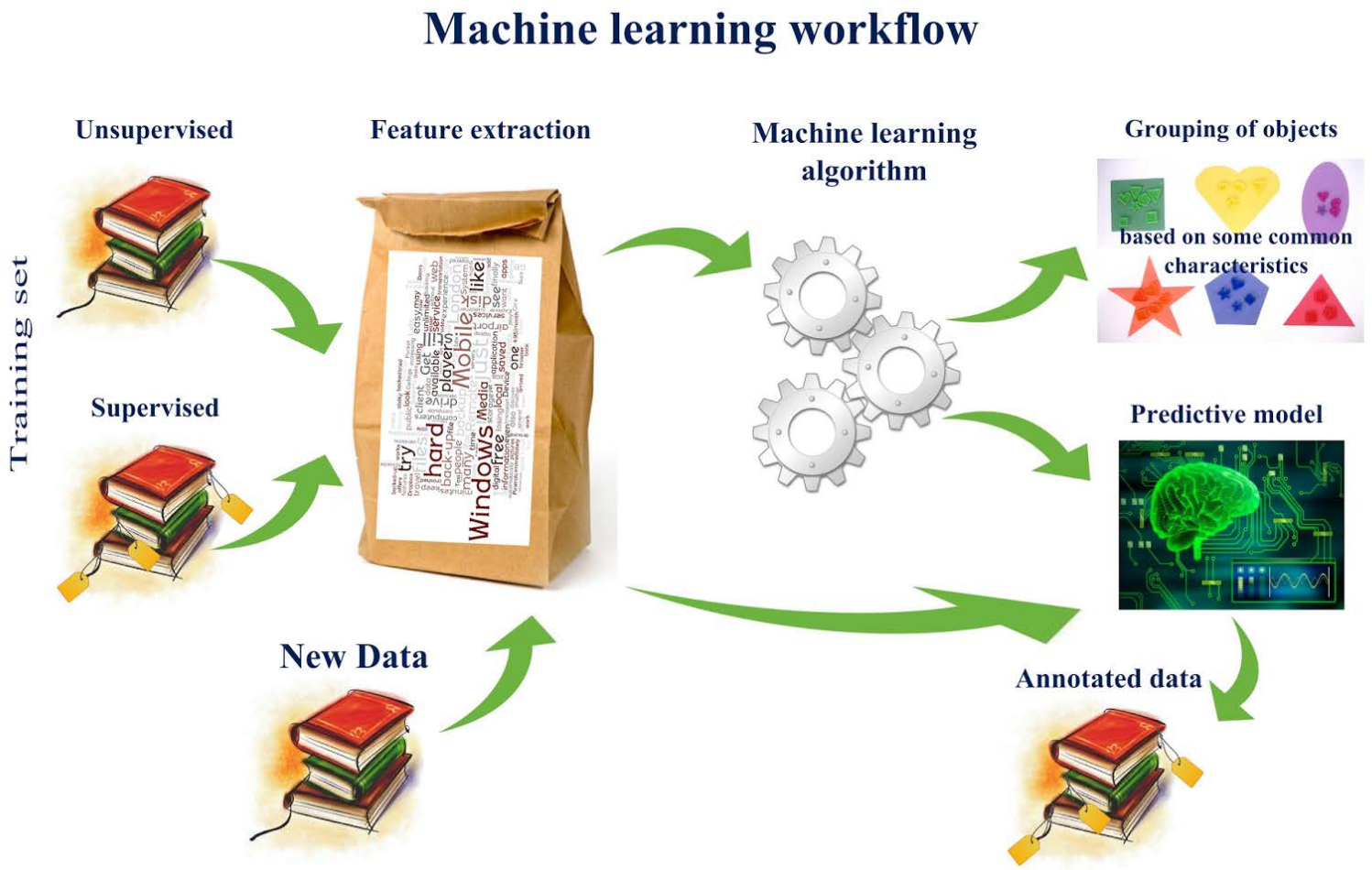
What is an Algorithm?

- **Algorithms are instructions for computers that tell them what to do and how to act.**
- **They are based on three logical operations: AND, OR, and NOT. While these operations can be put together in complex ways, at their core algorithms are built out of simple associations.**
- **They are the building blocks for machine and deep learning.**
- **Examples:**
  - A recipe
  - A program to balance your checkbook
  - Directions from Google or Apple map

What is Machine Learning?

- **A type of artificial intelligence that allows software applications to become more accurate in predicting outcomes without being explicitly programmed. The basic premise of machine learning is to build algorithms that can receive input data and use statistical analysis to predict an output.**
  (Source: http://whatis.techtarget.com/definition/machine-learning)
- ML process data to discover patterns that can be used to analyze new data. It **is a set of algorithms that train on a data set to make predictions or take actions in order to optimize some systems.**
  - Examples:
    - Labeling pictures of cats when given a large data set of animals.
    - Classifying potential candidates into good or bad prospects based on historical data.
    - Ranking people applying for loans on a data set listing how people with various incomes, etc. have historically repaid them.
  - A link to a more extensive, but easy to read and understand, source on this topic.

Machine Learning Graphic



http://nkonst.com/machine-learning-explained-simple-words/

What is Deep Learning?

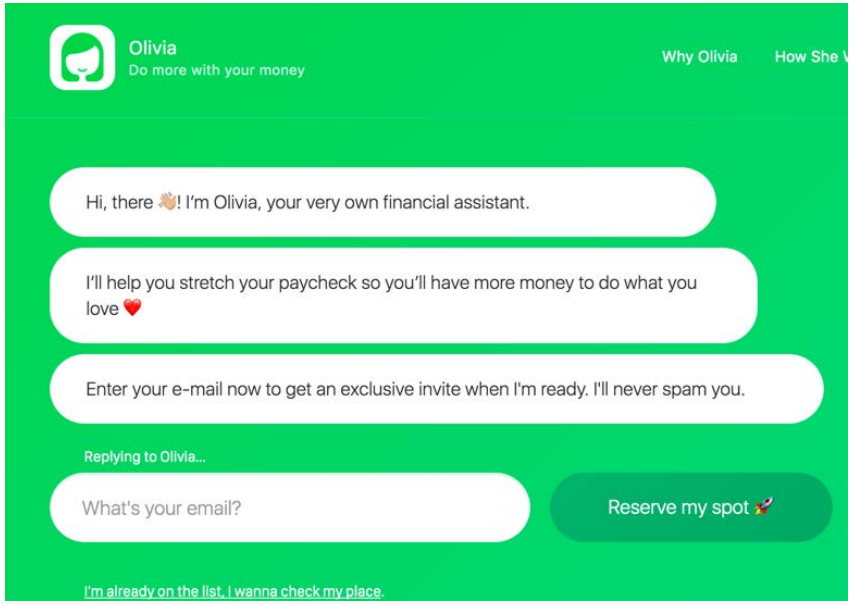
- Deep learning is sometimes referred to as the intersection between machine learning and artificial intelligence.
- Deep learning is a class of algorithms that tries to mimic how the human brain works. It has the potential to automate and replace most of the world's jobs.
- This is what makes self-driving cars work and what allows Spotify to create customized recommendations. This is how YouTube identifies faces and animals and how Siri understands free speech.
- Deep learning is based on layers of neural networks.
- Deep learning involves learning through layers which allows a computer to build a hierarchy of complex concepts out of simpler concepts.

What is Predictive Analytics

- **Predictive analytics uses algorithms, machine learning, statistical analysis, sentiment analysis, semantic analysis, and other complex methods to provide insight.**
- **Technology that learns from experience (data) to predict the future behavior of individuals to make better decisions.**
- **They can**
  - provide insight and validate or disprove assumptions.
  - augment human judgement & guide in decision making.
  - provide early warning that employees are unhappy or are thinking about leaving.
  - identify competencies and skills and predict their value to a particular role.

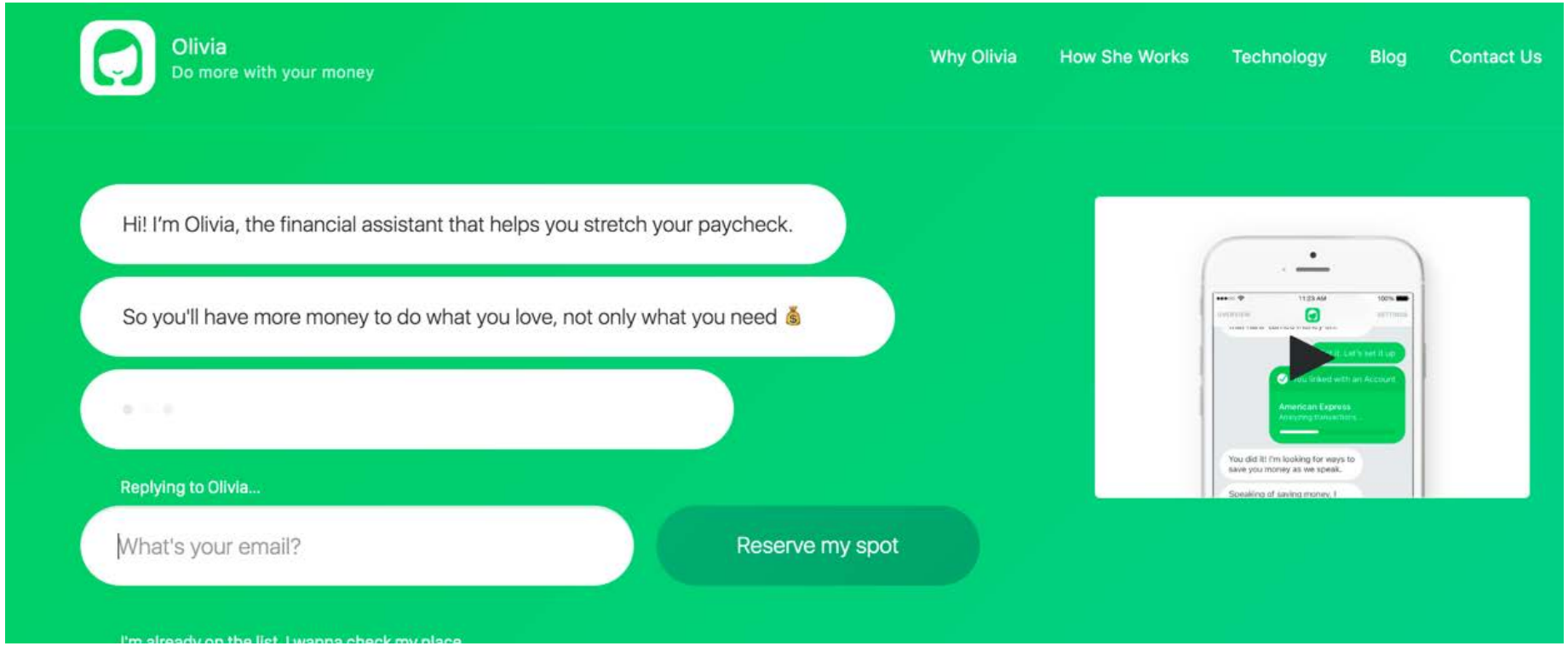
Emerging Tools based on A.I. & Machine Learning = Chatbots

- **Interactive tools that engage candidates and screen them in real time.**
- **Uses machine learning and predictive analytics to rank candidates & predict performance and/or qualifications.**
- **Makes recommendations and guides candidates based on their answers and other data.**



Sample Chatbot

OLIVIA



Created by Recruiting.Ai. “Personal Recruiting Assistant”. Uses machine learning to create an intuitive hiring process. , Olivia starts a conversation with the candidate when they first express interest in the company or a specific role.

Prepared by Kevin Wheeler

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Follow Kevin on Twitter: @kwheeler
Email: kwheeler@futureoftalent.org