

The Cloud AI Roadmap to Deriving Value from Your Data

Presented by:

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Eric McCracken



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Don't give up!



Structured Data

Employee table

| Empno (PK) | Ename | job | Deptno (FK) |
|------------|-------|----------|-------------|
| 7369 | SMITH | CLERK | 20 |
| 7499 | ALLEN | SALESMAN | 30 |
| 7521 | WARD | SALESMAN | 30 |
| 7566 | JONES | MANAGER | 20 |
| 7654 | BLAKE | MANAGER | 30 |

Department table

| Deptno (PK) | dname | loc |
|-------------|------------|----------|
| 10 | ACCOUNTING | NEW YORK |
| 20 | RESEARCH | DALLAS |
| 30 | SALES | CHICAGO |

| Empno (PK) | Ename | Deptno (FK) | dname |
|------------|-------|-------------|----------|
| 7369 | SMITH | 20 | RESEARCH |
| 7499 | ALLEN | 30 | SALES |
| 7521 | WARD | 30 | SALES |
| 7566 | JONES | 20 | RESEARCH |
| 7654 | BLAKE | 30 | SALES |

Unstructured Data...is everything else

- 2.5 EB¹
 - of data created each day
- 80%²
 - is unstructured
- 95%³
 - of companies need to manage unstructured data
- 40%⁴
 - need to manage unstructured data on a daily basis

¹Michael Belfiore, "How 10 industries are using big data to win big," <https://www.ibm.com/blogs/watson/2016/07/10-industries-using-big-data-win-big/>, (July 28, 2016).

²Grimes, Seth (1 August 2008). "Unstructured Data and the 80 Percent Rule". Breakthrough Analysis - Bridgepoints. Clarabridge.

^{2,3}Rohit Kulkarni, "Big Data Goes Big," <http://www.forbes.com>, (February 7, 2019).



AI is now the top “game changer”¹

A 2019 Gartner CIO Agenda survey that gathered data from more than 3,000 CIO respondents in 89 countries and all major industries, concluded that artificial intelligence is now considered the top game-changer technology¹

AI in the Workplace

Usage percent of organizations by 2021²



70%

Virtual Agent Usage

Usage percent in Industry 4.0 ecosystems by 2022³



50%

AI Market Share

Intelligent apps share Of enterprise apps market by 2022⁴



30%

AI Becomes the New UI

Percentage of traditional screen-based apps replaced by AI UI by 2022⁵



33%

¹Gartner (October 16, 2018). *Gartner Survey of More Than 3,000 CIOs Reveals That Enterprises Are Entering the Third Era of IT* [Press release]. Retrieved from <https://www.gartner.com/en/newsroom/press-releases/2018-10-16-gartner-survey-of-more-than-3000-cios-reveals-that-enterprises-are-entering-the-third-era-of-it>

²Gartner (January 24, 2019). *Gartner Predicts 70 Percent of Organizations Will Integrate AI to Assist Employees' Productivity by 2021* [Press release]. Retrieved from <https://www.gartner.com/en/newsroom/press-releases/2019-01-24-gartner-predicts-70-percent-of-organizations-will-integrate-ai-to-assist-employees-productivity-by-2021>

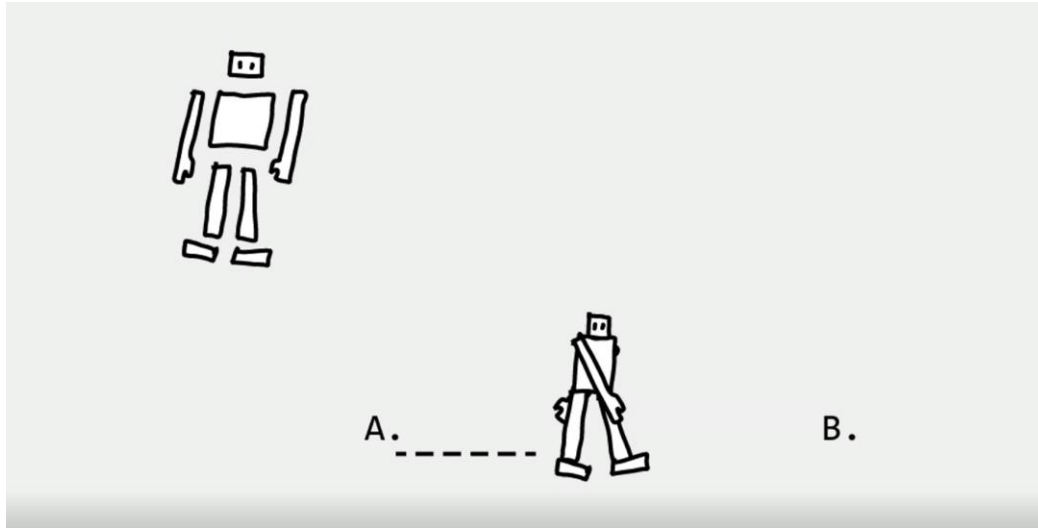
³Gartner: *Top 10 Strategic Technology Trends for 2019*, Published: 15 October 2018, Analysts: David Cearley, Brian Burke

⁴GIDC (2019). Retrieved from <https://www.idc.com/promo/thirdplatform/innovationaccelerators/cognitive>

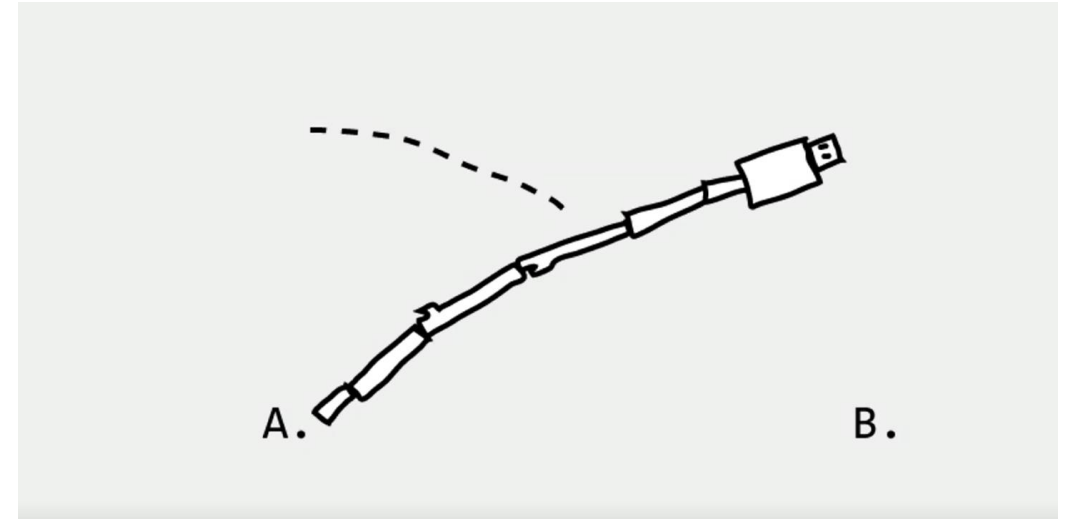
⁵IDC *Futurescape: Worldwide IT Industry 2019 Predictions*, Published: October 2018, Analysts: Frank Gens et al. Retrieved from <https://www.idc.com/getdoc.jsp?containerId=US44403818>

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AI does exactly what we ask it to do

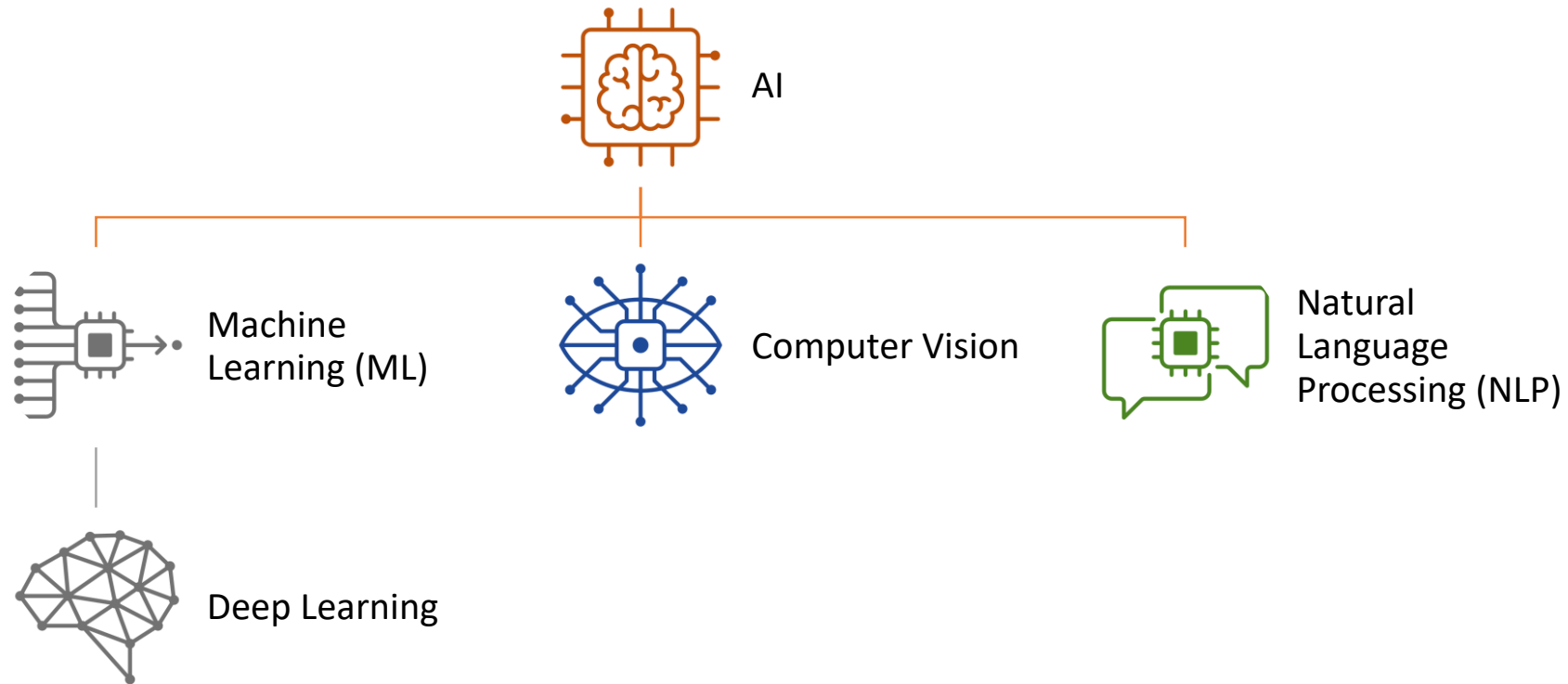


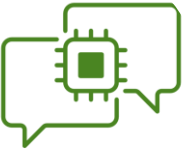
How we assume AI will solve the problem



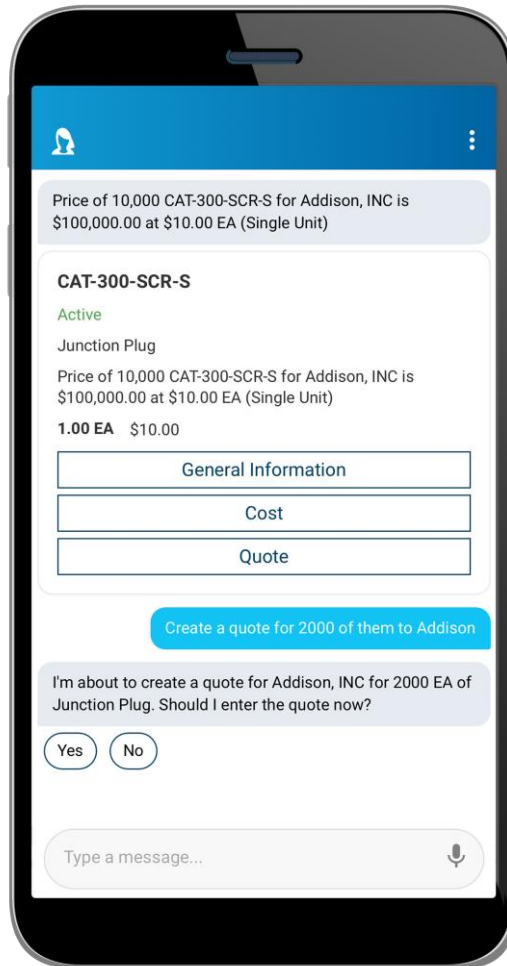
How this AI actually did it

Common AI Technologies

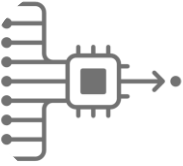




Natural Language Processing

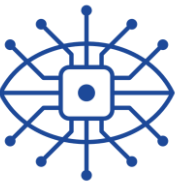


1. A human talks to the machine
2. The machine captures the audio
3. Audio to text conversion takes place
4. Processing of the text's data

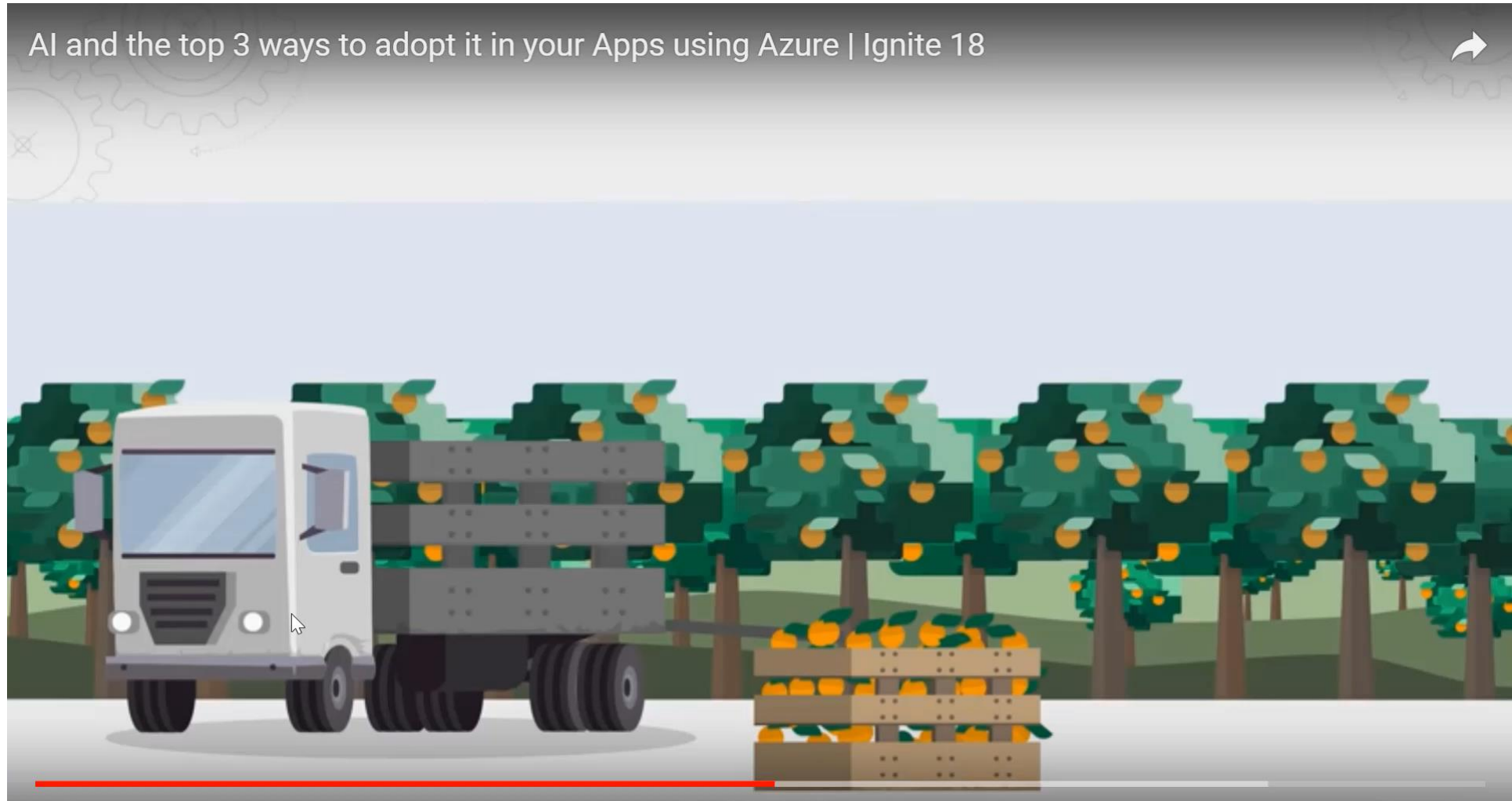


Machine Learning

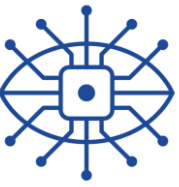
- Algorithm performs specific task without explicit instructions
- Relies on pattern and inference



Computer Vision

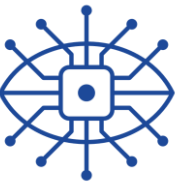


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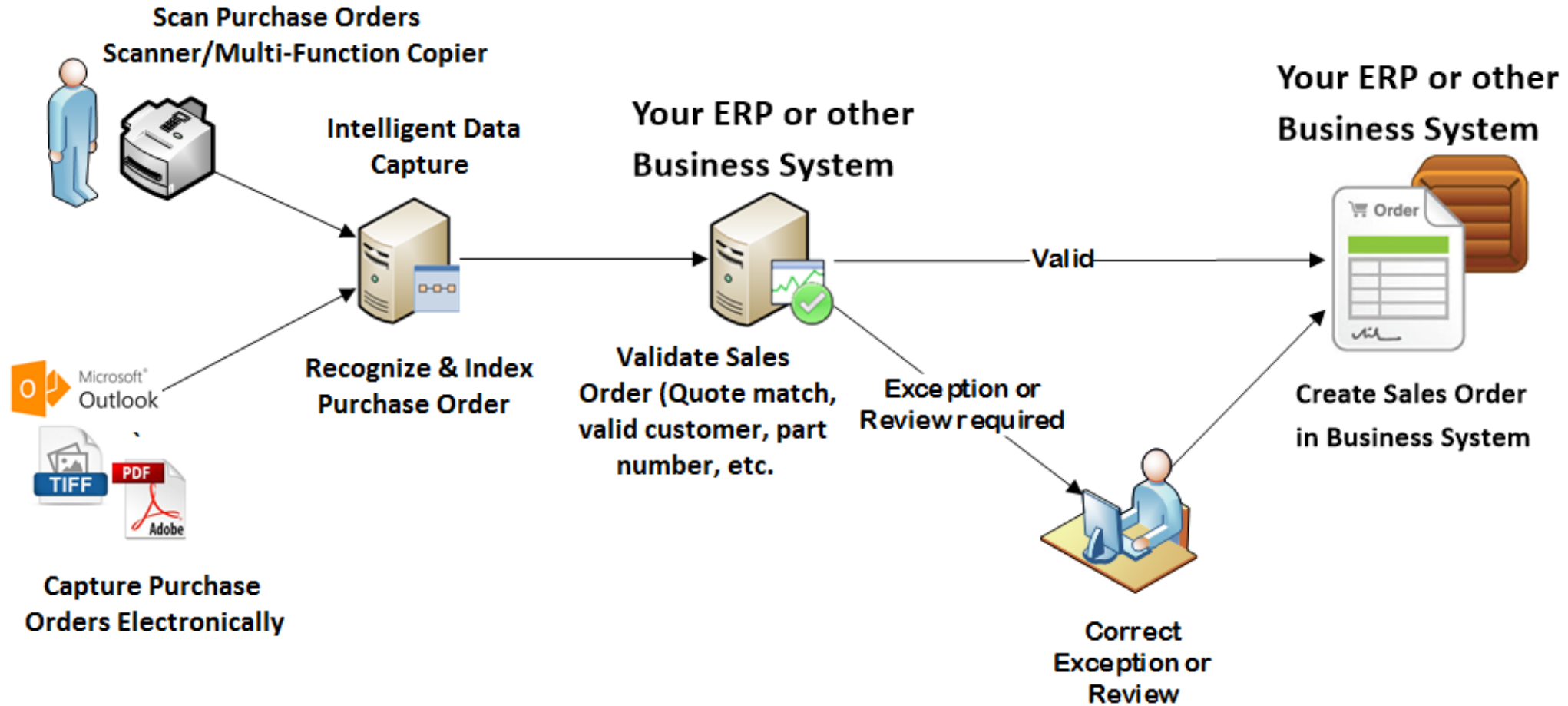


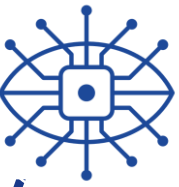
OCR for Unstructured Data in Documents

- Traditional OCR
 - You convert a document to an image, then the software tries to match letters against character sets that have been uploaded by a human operator
- Machine Learning OCR
 - With machine learning, algorithms trained on a significant volume of data learn to think for themselves. Instead of being restricted to a fixed number of character sets, these new OCR programs will accumulate knowledge and learn to recognize any number of characters.
- Deep Learning OCR
 - Algorithms don't have to rely on historical patterns to determine accuracy -- they can do it themselves, and they can derive meaning from the documents. a company might scan hundreds of insurance contracts with the end goal of uncovering its climate-risk exposure.



A Typical Unstructured Data Application





Indexing the Document into a Data Repository

Home

Data Verification

Reports

Admin Panel

Circle Search

Default Batch

Save Batch

Document-1-Page-1

Document-2-Page-1

Document-3-Page-1

Submit

Document Type

PURCHASE ORDER DEMO

CUSTOMER

Empire State Tractors

DATE

2/2/19

PO NUMBER

57300

SUBTOTAL

175.00

TAX

SHIPPING AND HANDLING

PO TOTAL

175.00

+

-

0

| ITEM | DATE REQUIRED | DESCRIPTION | QTY | UNIT PRICE | LINE TOTAL |
|------|---------------|-------------------------------------|-----|------------|------------|
| 1 | | Mtg Part 40p No Material | 1 | 25.00 | 25.00 |
| 2 | | Mtg Part BOM(as material of 187000) | 2 | 35.00 | 70.00 |
| 3 | | MSP-MP003 | 2 | 40.00 | 80.00 |
| 4 | | | | | |

Empire State Tractors

No job to log!

10000 Street & Main Ave
Salem, NJ 08050
Phone (202) 444-8324 Fax (202) 444-8324

Mr.
Company Name
Optima - Mountain
10000 Street & Main Ave
Salem, NJ 08050
Phone (202) 444-8324 Fax (202) 444-8324

| A.S. Order | Empire State Tractors | Order Date | PO & Amount | Comments |
|------------|-----------------------|------------|-------------|-----------|
| 57300 | Empire State Tractors | 2/2/2019 | 175.00 | PO 175.00 |

| Item | Part # | Description | Unit Price | Quantity | Total |
|------|--------|-------------------------------------|------------|----------|-------|
| 1 | 187000 | Mtg Part 40p No Material | 25.00 | 1 | 25.00 |
| 2 | 187000 | Mtg Part BOM(as material of 187000) | 35.00 | 2 | 70.00 |
| 3 | 187000 | MSP-MP003 | 40.00 | 2 | 80.00 |

Subtotal

175.00

Tax

0.00

Shipping & Handling

0.00

Total

175.00

1. Please send me copies of your catalog.

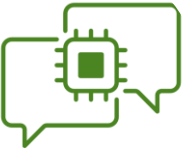
2. Please send me a copy of your price list, terms, delivery schedule, and quality control data.

3. Please send me a copy of your quality control data.

Send all correspondence to:
Mr. J. J. J.
Empire State Tractors
10000 Street & Main Ave
Salem, NJ 08050
Phone (202) 444-8324 Fax (202) 444-8324

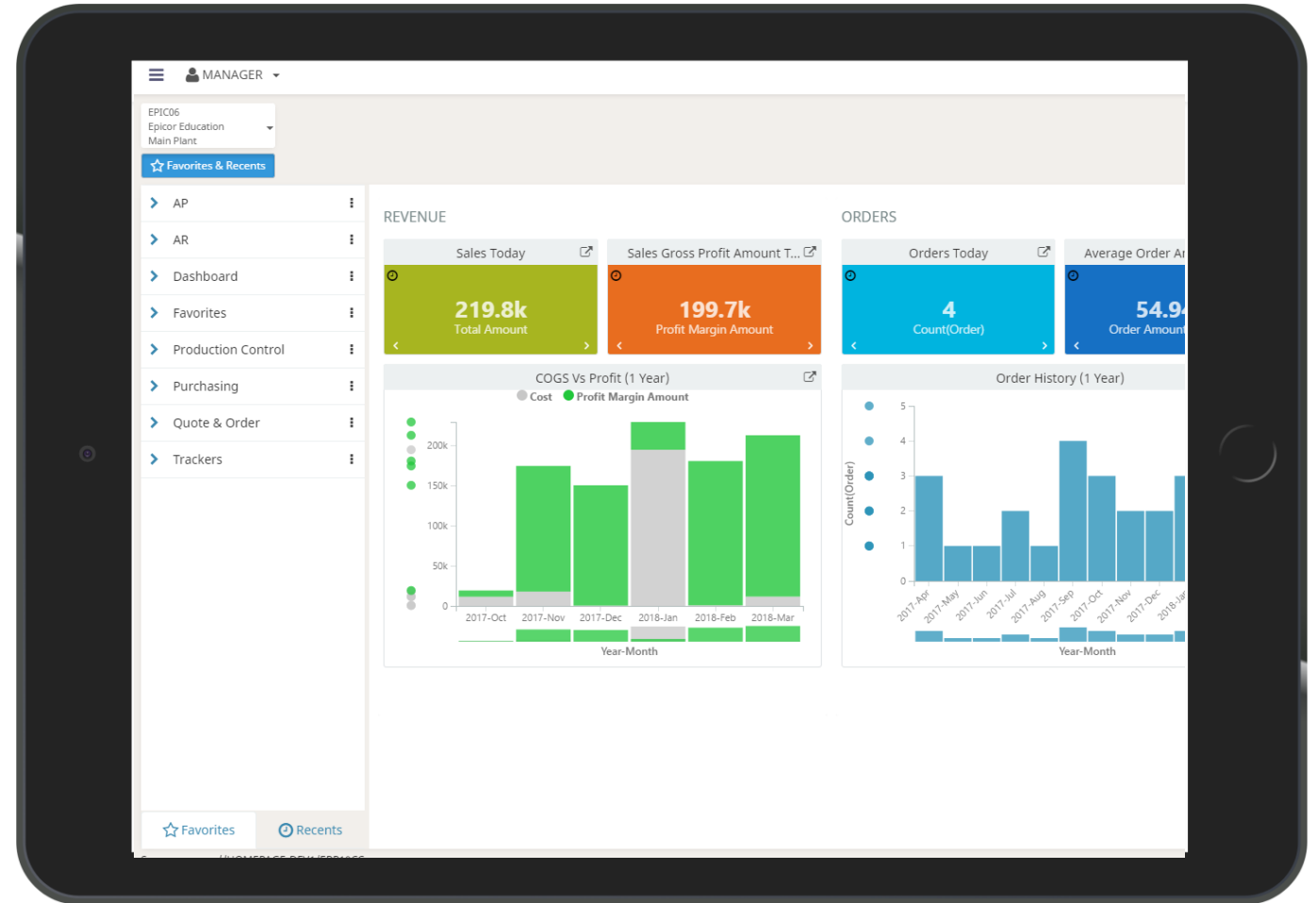
Signature

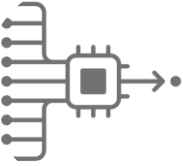
Signature



NLP for Structured Data

- Speak “show me today’s sales”
- Your unstructured query is converted to a structured query





ML for Structured Data

- Inventory leveling scenario.
- Making best use of floor space on factory floor
- Setting upper and lower limits for inventory stocking based on machine learning



In Summary

- 3 Main AI Technologies
 - Machine Learning/Deep Learning
 - Computer Vision
 - Natural Language Processing
- Unstructured Data
 - OCR and ML Use Cases
- Structured Data
 - NLP and ML Use Cases
- Cloud Services for AI



For more information:

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