



# Automating Human-Centric Processes with Machine Learning

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All applications are  
“Intelligent Applications”

Machines are now learning from data



# Roadblocks

- Complexity
- Setup cost
- Data
- Integrating
- ...

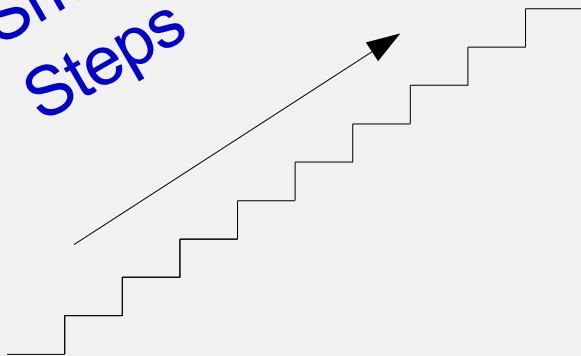
# Roadblocks

- Complexity
- Setup cost
- Data
- Integrating
- ...

**Business Automation  
as Enabler**



Small  
Steps



Artificial Intelligence



# Focus on Human Tasks

In Business Processes or Cases



# Integration

- PredictionService
  - Train
  - Predict

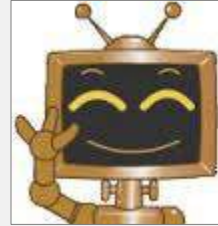
```
public interface PredictionService {  
  
    PredictionOutcome predict(Task task, Map<String, Object> inputData);  
  
    void train(Task task, Map<String, Object> inputData, Map<String, Object> outputData);  
  
}
```



# Random Forest Algorithm

# Integration

- Smile
  - Statistical Machine Intelligence and Learning Engine



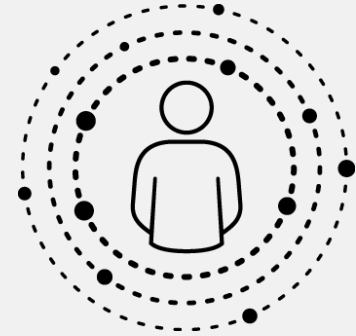
- Apache Spark
  - MLlib



- ...

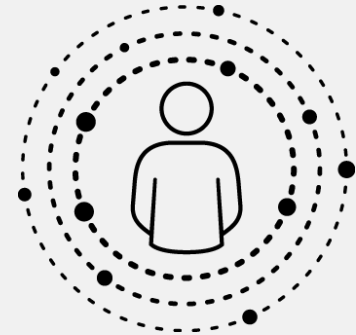
# Non-intrusive

- 1) Augment
- 2) Recommend
- 3) Learn



# Non-intrusive

- 1) Augment
  - Prediction
  - Confidence
  - Relative importance of parameters
  - History
  - ...



# Non-intrusive

1) Augment

2) Recommend

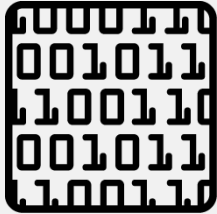
- Based on historical data
- Case management with dynamic tasks
- Recommendation that needs to be approved



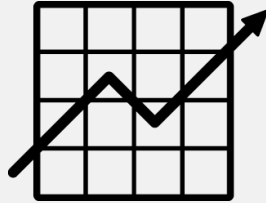
# Fully Automated

1) Augment

2) Recommend



+



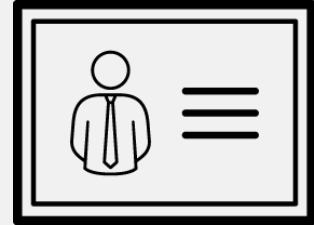
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# Non-intrusive

- 1) Augment
- 2) Recommend
- 3) Learn
  - Extract what was learned
  - Analyze
  - Encode

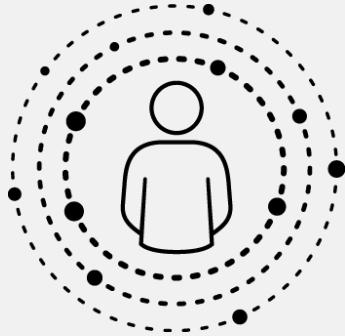


Enable Machine Learning  
in a non-intrusive way

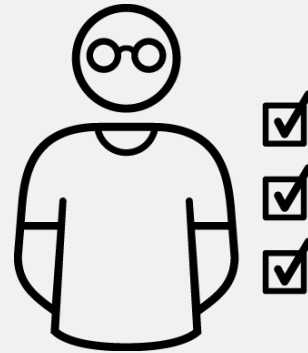
# Lessons learned

- Only as smart as the data you give it
- Apply in specific situations
- Algorithms sometimes biased
  - Only small amount of data
  - Too uniform data
  - Unseen data
- Doesn't necessarily learn the correct behavior
  - Could have strange sideeffects
  - Analyze before you encode

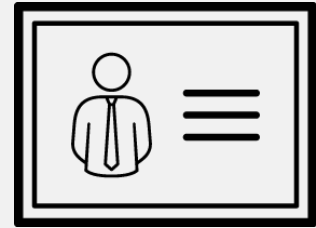
# Demo



Augment



Recommend



Learn