estimate

estimate • analyze • plan • control

An approach towards determining value through the application of Machine Learning

ICEEA 2018 Annual Conference – Phoenix, AZ

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Christopher Hutchings – Director for Business Development
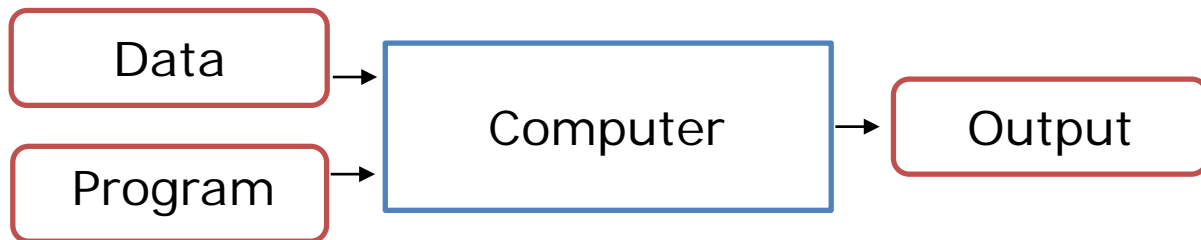
estimate

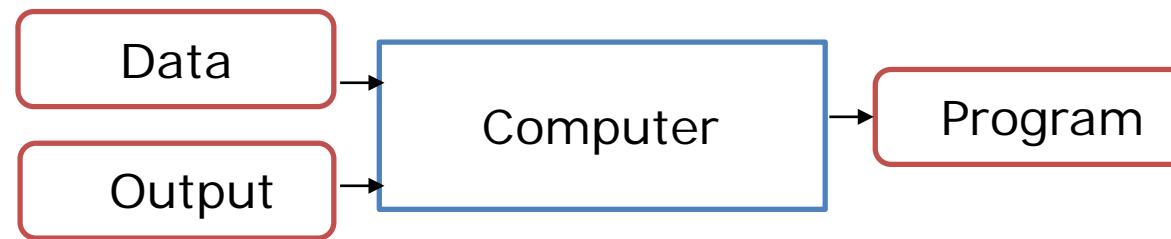estimate • analyze • plan • control

Agenda

- <u>Introduction to Machine Learning.</u>
- Practical Applications
- Functional Applications
- Types of Machine Learning
- Value Estimation with Machine Learning
- The Future of Machine learning and why we should care

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Introduction to Machine Learning

"Machine Learning is the science of getting computers to learn and act like humans do, and improve their learning over time in autonomous fashion, by feeding them data and information in the form of observations and real-world interactions." -

Data

Program

Computer

Output

Traditional Programming

Data

Output

| Computer |
|----------|

Program

Machine Learning

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Practical Applications of Machine Learning

Finance
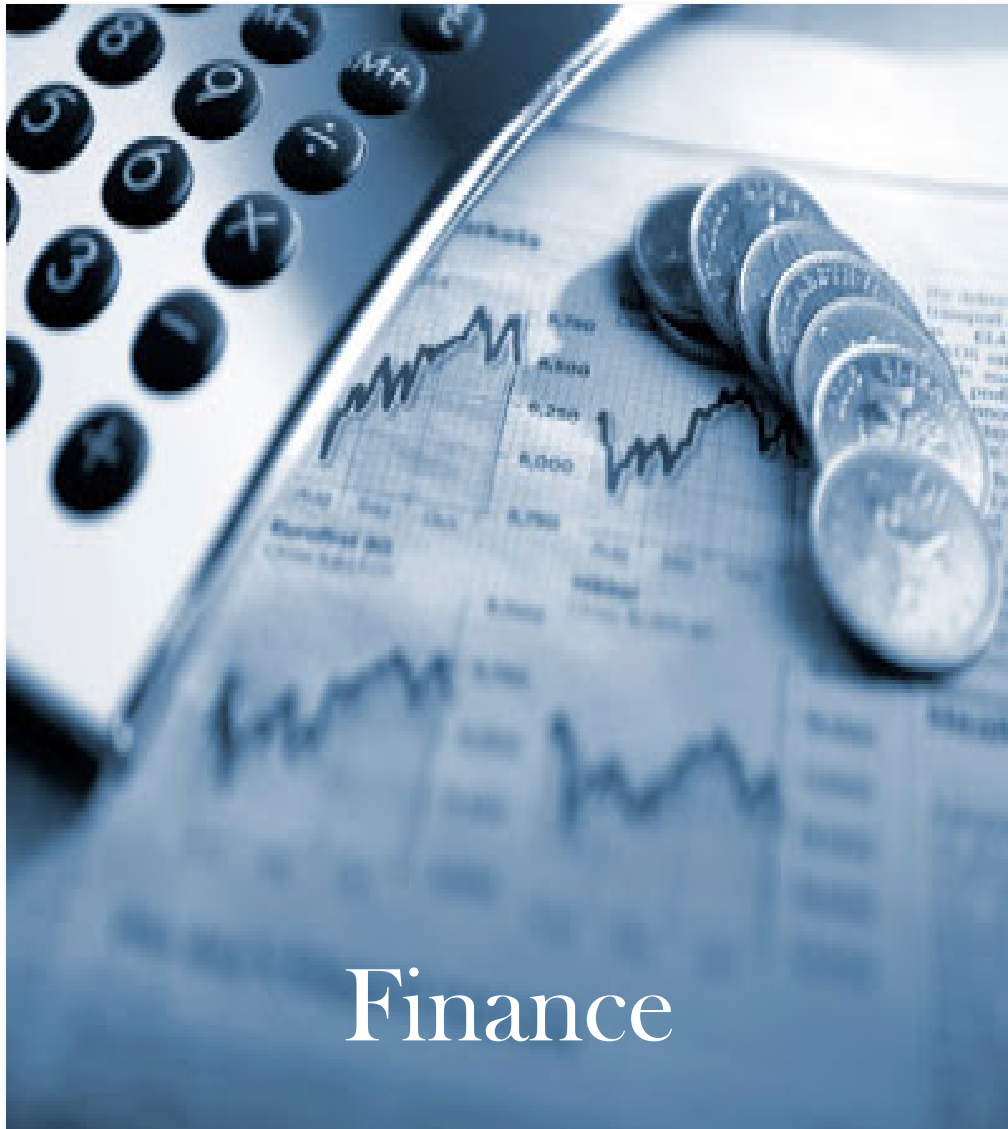
Fraud Prevention

Market Analysis

Practical Applications of Machine Learning

Finding Energy

System Failures Detection

Energy

Practical Applications of Machine Learning

Healthcare

Drug Production

Diagnosis

Nuanced Treatment

Efficiencies / Margins

Practical Applications of Machine Learning

Profiling

Voter fraud

Expenditure

Government

Practical Applications of Machine Learning

Commerce

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Recommendations

Logistics

Buyers trends

estimate

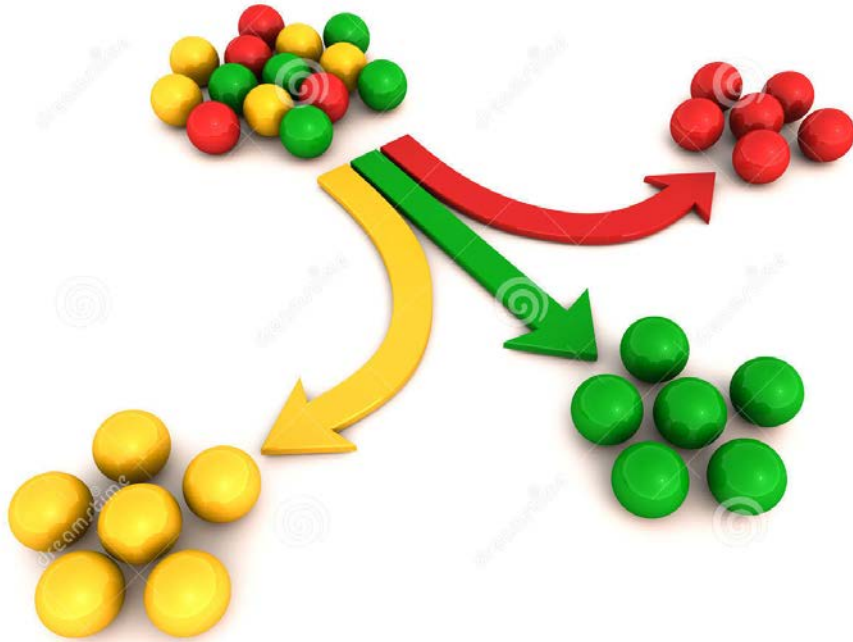estimate • analyze • plan • control

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Functional Applications of Machine Learning

- ## Classification

Linear Regression Curve

Daily Chart - E-mini S&P 500 Future (ES)

Sell when Price deviates above
Linear Regression Curve

Buy when Price deviates below
Linear Regression Curve

9-day Moving
Linear Regression

Functional Applications of Machine Learning

Cluster plot

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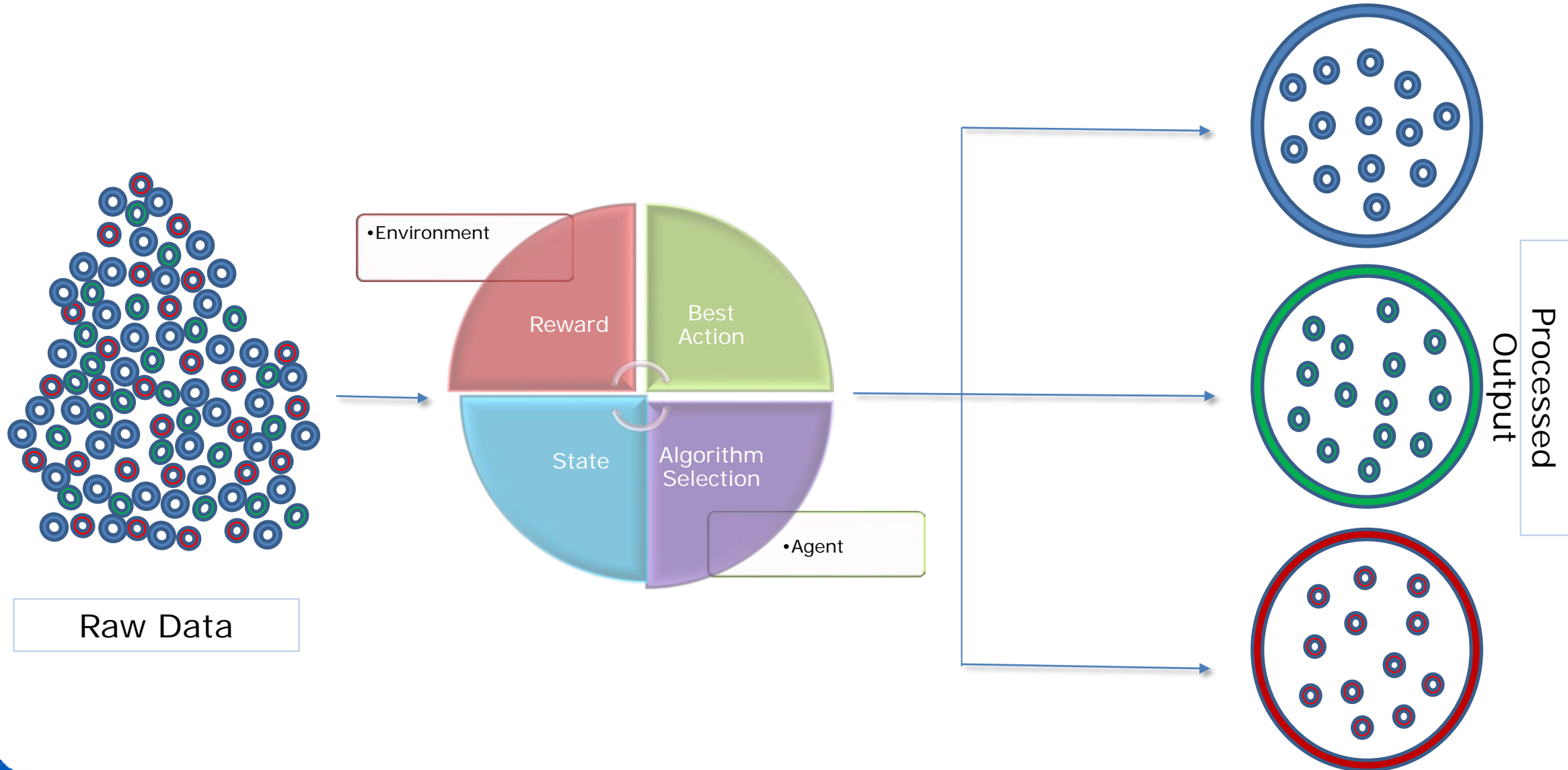

Dimensionality Reduction

estimate

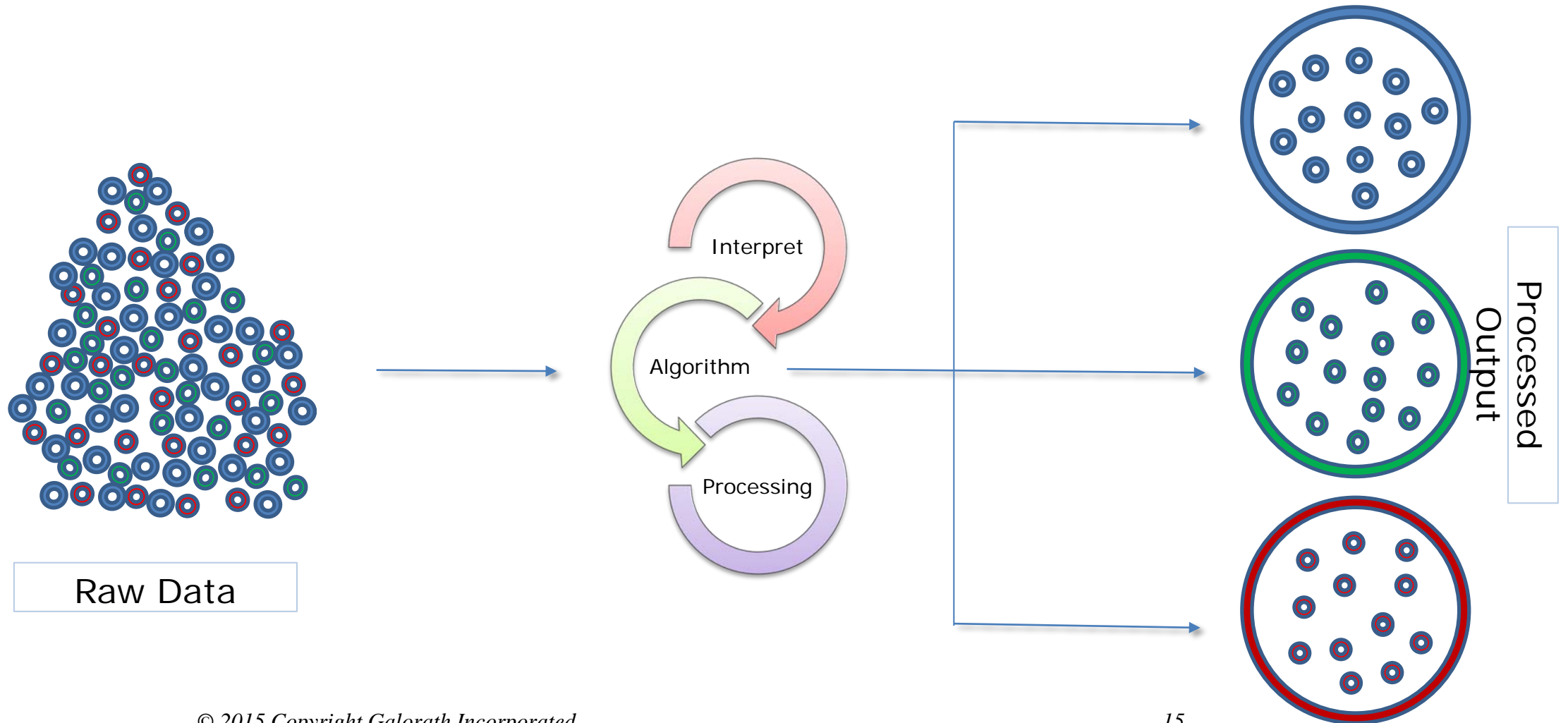estimate • analyze • plan • control

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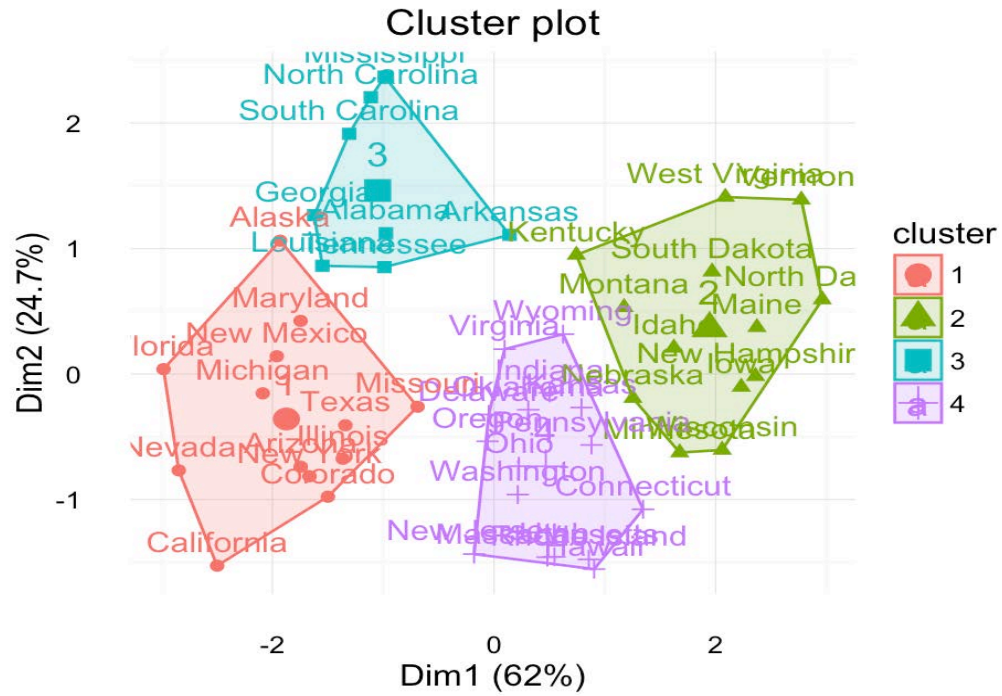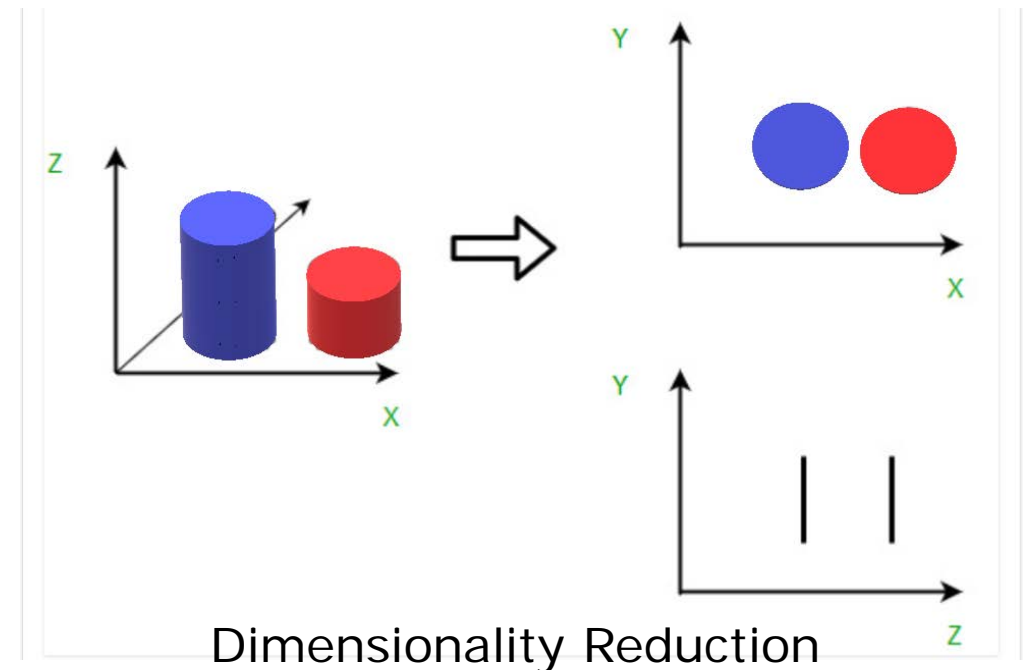
Types of Machine Learning and their uses

Raw Data

Environment

Reward

Best Action

State

Algorithm Selection

Agent

Processed Output

UNSUPERVISED LEARNING

Interpret

Algorithm

Processing

Raw Data

Processed Output

SUPERVISED LEARNING

Desired Output

Training Data

Supervision

Algorithm

Processing

Raw Data

Processed Output

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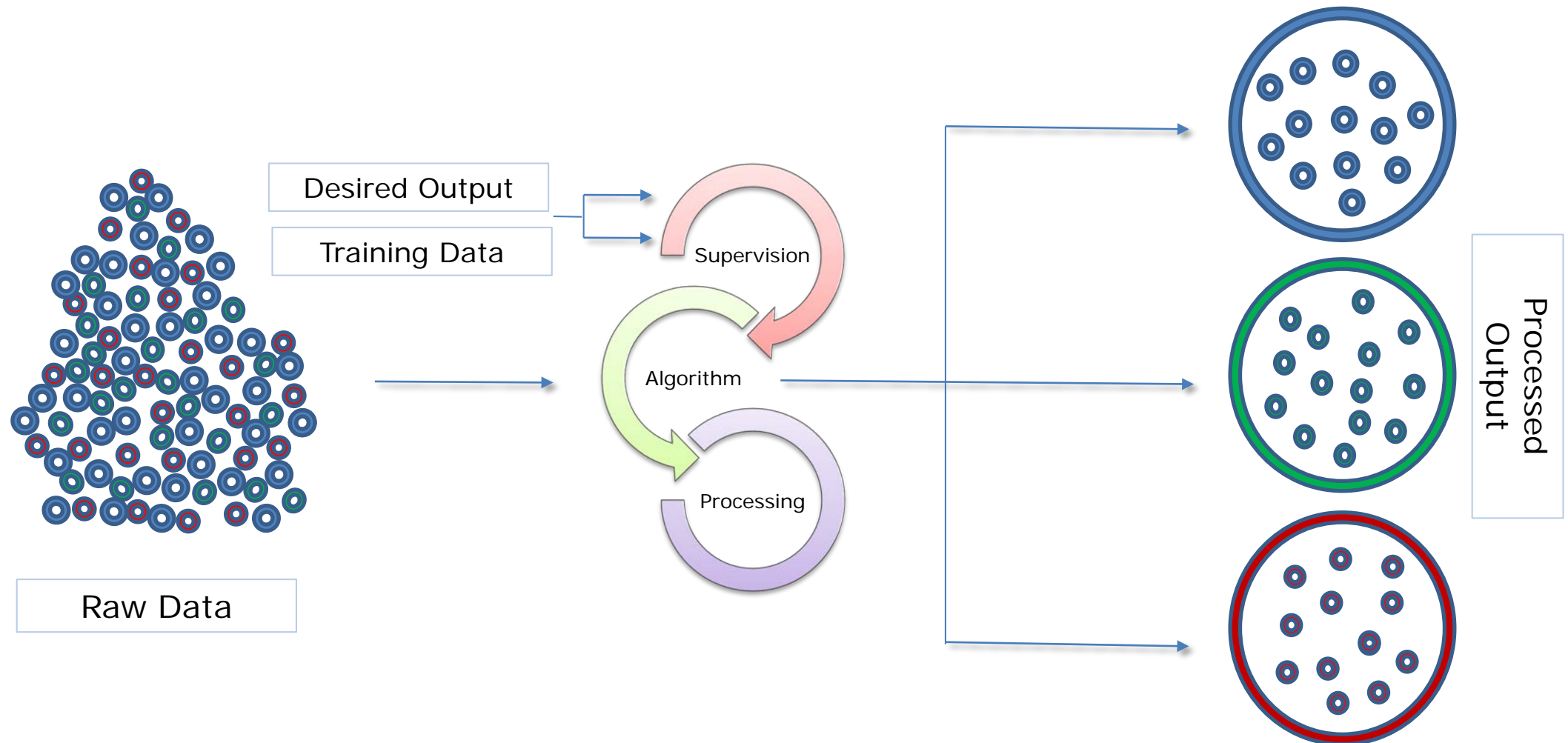- The Future of Machine learning and why we should care

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Value Estimation with Machine Learning

- Traditionally Methods

  - semi-subjective and prone to error, (Texas Realtors)

  - Slower / lagging

  - More expensive

- Machine learning systems

  - Data driven (massive repository)

  - Instantaneous / current

  - Inexpensive

  - Inclusive

  - Iterative

  - Open

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The future of Machine Learning and why we should care.

Transport

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Health

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The future of Machine Learning and why we should care.

- Paragraph

The future of Machine Learning and why we should care.

Dating

Communication

The future of Machine Learning and why we should care.

- Moderation

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The future of Machine Learning and why we should care.

RISK RATING TABLE

IMPACT					
5	M	H	H	H	H
4	M	M	H	H	H
3	L	L	M	M	H
					M
					L
					S

24

The future of Machine Learning and why we should care.

Spares and repairables

Questions

Please contact

Christopher Hutchings

chutchings@Galorath.com

Tel: +1 310 906 6320

www.galorath.com