Robotics & AI Innovation

Alan Lee @OGCIO Seminar June 2020

Robotics AI & Big Data Analytics Use Cases

Partner in Data Intelligence

Contents

華實科技

Alan Lee
Contact: alan.lee@risksis.com
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Blockchain & AI Partnership:

Deloitte. pwc Simmons & Simmons jos

Blockchain Eco-system:

Banks, HKMA, Ship Owners, Charterers,Traders, Chambers, Inspection, Insurer, Customs …

Official Big Data Partner:

cloudera

Featured Client References:

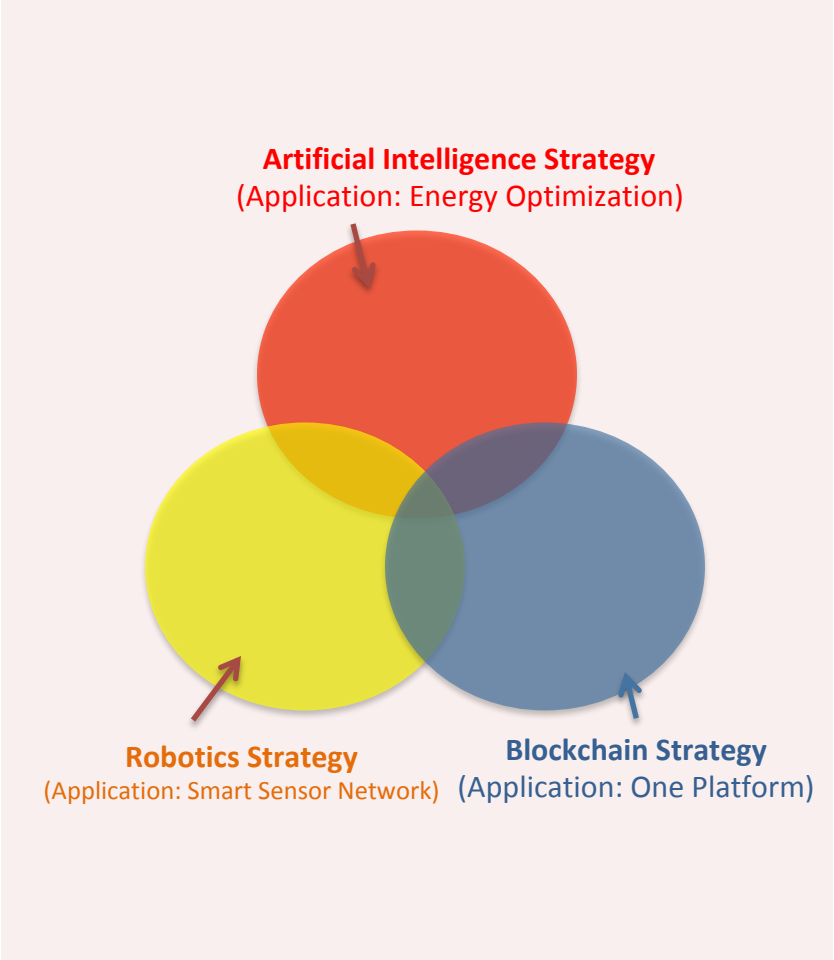
Cathay Pacific Catering Services · Deloitte. · 香港特別行政區政府 政府資訊科技總監辦公室 Office of the Government Chief Information Officer The Government of the HKSAR · 中国人寿 CHINA LIFE · A.S. Watson Group · PHILIPS · HGC Hutchison Global Communications 和記環球電訊 · HKPC Hong Kong Productivity Council · watsons · JEANSWEST 真維斯 · sasa · 香港天文 HONG KONG OBSERVATORY · 運輸署 Transport Department · LSCM · VTC · computime · FedEx

RISKSIS TECHNOLOGY

RISKSIS

- ✓ Big Data
- ✓ Artificial Intelligence
- ✓ Block-chain
- ✓ Robotics

Digital Transformation Roadmap



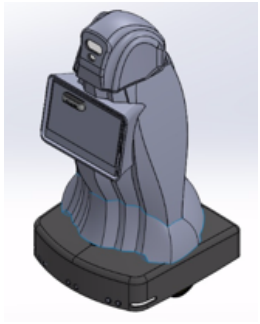
Our Proposed 3-Pillors-Innovation Strategy

Robotic Customization

Customized Robot
Example: Fever Detection & Disinfectant

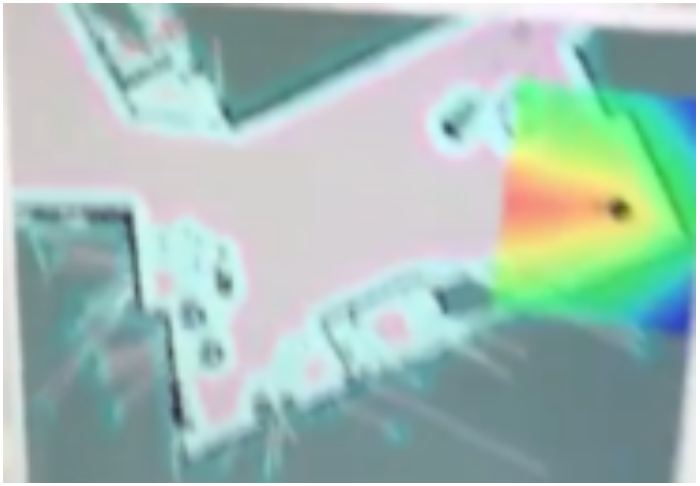
Medium-Size Robot

Height: 1.7m
Ultra-Strong Motors
High-precision Thermal Camera
Big-LCD for Guard Display
Obstacle Avoidance



Small-Size Robot

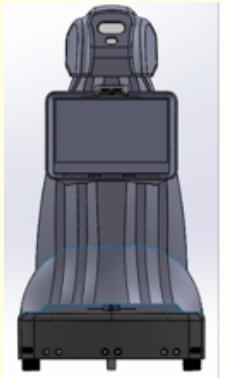
Height: 0.9m
High-precision Thermal Camera
Strong Motors
LCD for Cute-Display & Control
Obstacle Avoidance

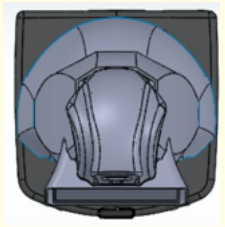


Autonomous Navigation

Thermal Camera Images

Picture on the left shows the robot detects temperature of our teammate sitting in shopping mall





Fog-Spraying Type

Disinfectant Robot

UV-Type

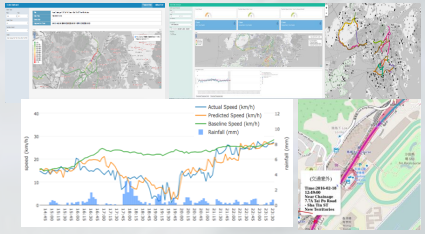
More AI &
System Development Examples

AI Client Examples in Different Industries

Hong Kong Government
Smart Traffic – Predictive Analytics

Objective:
- Predictive Analytics in Traffic Impact
- Real time Traffic Speed Prediction for Major Routes and Urban Roads
- Data Sources include historical speed data, rainfall data, news data, accident data, incidents data and many more.

Methodology:
Deep Learning – Big Data Artificial Intelligence



Logistic Company
Big Data Customer Statistical Analytics: Revenue Growth Strategy and Retention Strategy

Objective:
- Revenue growth of a client (

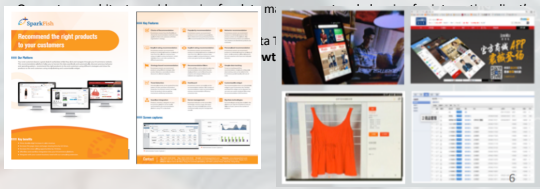
The work of Alan's team:
- Our team collects data from many touch-points of clients such as sales data, marketing, customer service data, phone call data, logistics delivery data, warehouse operation data, email data, social media and transaction data.
- Statistician analysed the business scenario and designed the customer strategy using algorithms
- We deployed Big Data machine learning to automate the business strategy

Global Retailer
Big Data Recommendation Engine and E-commerce / Analytic Services

Objective:
Upsell/Cross-sell the retailer's product in E-commerce and Brick-and-mortar. ;
Provide predictive insights on suggesting product and items in online and offline shop.
Offline-to-Online (O2O) retail customer upsell by using multi-touch-point data.

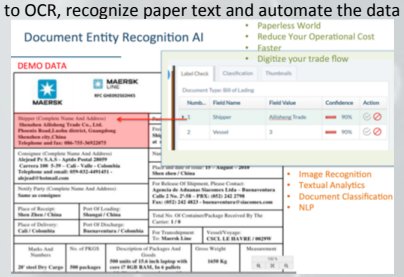
Algorithm Methodology:
Collaborative Filtering and Statistical Analysis

The work of Alan's team:
- Project Manager and business consultant conduct business due diligence
- Our statistician use Statistical Modules to analyze the business and fine tune the parameters on the prediction model by mathematics
- Our software developers develop Big data machine learning modules to run the analysis



Financial Institutions - Banks
AI - Entity Recognition Engine (Paper-to-Electronic Module)

Methodology:
Deep Learning – Big Data + Artificial Intelligence
Objective:
- Big Variety of Document format cause rule-based OCR recognition difficult
- AI is used to OCR, recognize paper text and automate the data entry



Global Technology Group
Smart Home Big Data Cloud on Internet of Things / Consulting / Training

Objective:
Our hardware team has developed Smart Home solution controlling electrical appliances via ZigBee wireless technology to control, monitor and provide intelligence.
We have streamlined the data to our big data server farm to provide intelligence for energy saving, product propensity and predictions.

Telecom Operators
Network Equipment Monitoring – Big Data on Telecom Sensors Network

Project Example
Telecom Equipment Tester: Our Proprietary hardware telecom equipment
Mobile Application Front-end for Control: Technicians can use the mobile phone to remotely control and monitor the telecom equipment and infrastructure
Big Data Analytics
Use Big Data Technologies for large scale data collection from remote equipment
Use Classical machine learning algorithms for time series predictions

HVAC & Building Industry / Government
AI – Building Energy Saving

Client:
- **HK Government**
- **Data Center in China PRC**
- **Buildings in China**

Methodology:
- Reinforcement Learning

Objective: Energy Saving

Global Network Security Group
AI – Cyber-security NLP Project

Warehouse & Industry Associations
Big Data & AI – Pose Recognition

Tertiary Education
Big Data Employment & Industry Analysis System

Semi-Government Research Group
Big Data & AI – Recruitment Trend on NLP on Market information

Client Examples

AI Time Series in Smart City

Hong Kong Government

Smart Traffic – Predictive Analytics

Objective:

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Methodology:

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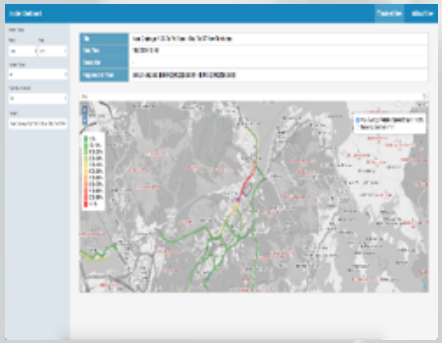

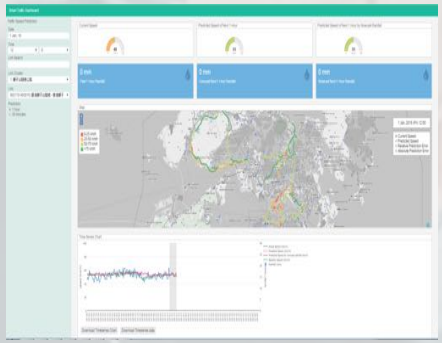

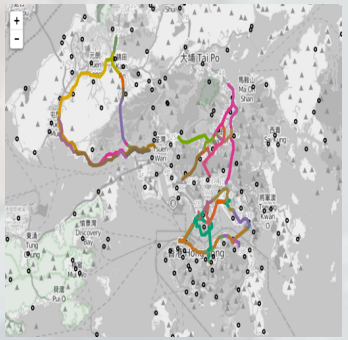

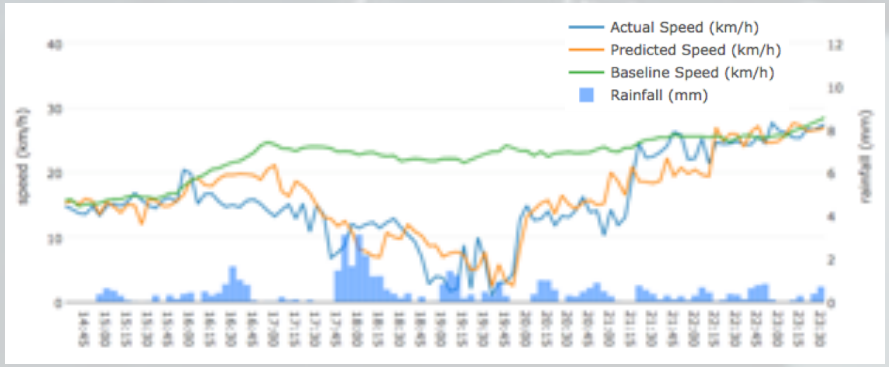

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Client Examples

AI in
Energy Saving

Electrical & Mechanical Energy Saving

AI Energy Saving & Optimization – HVAC Chiller

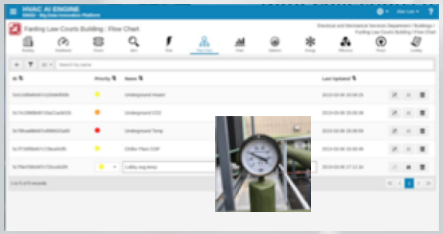
Objective:

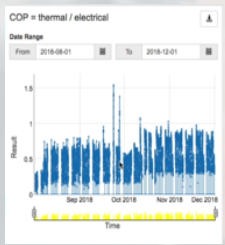
- Predictive Analytics in Energy Saving in Building Chiller System
- Data Collections from Building Sensors & External Data
- By suggesting different set-point settings of the system, back-test shows significant Energy Saving can be achieved

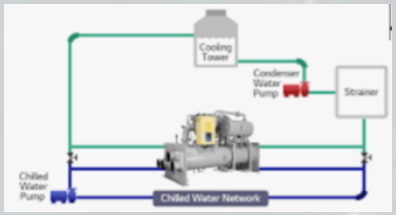
(Client: Government Clients; Some Commercial Clients)

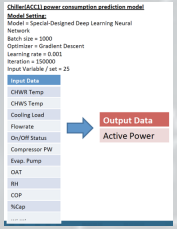
Methodology:

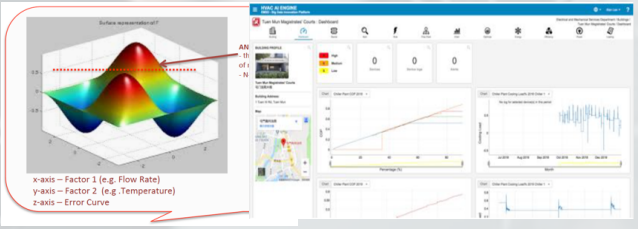
Deep Learning – Big Data Artificial Intelligence

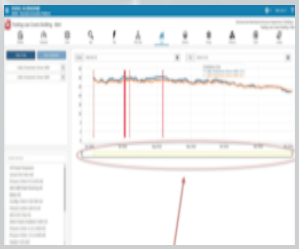


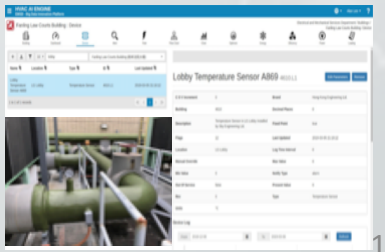












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Client Examples

AI in Mechanics

Preventive Maintenance

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Tel: 60516869

Motors & Mechanical - Preventive Maintenance

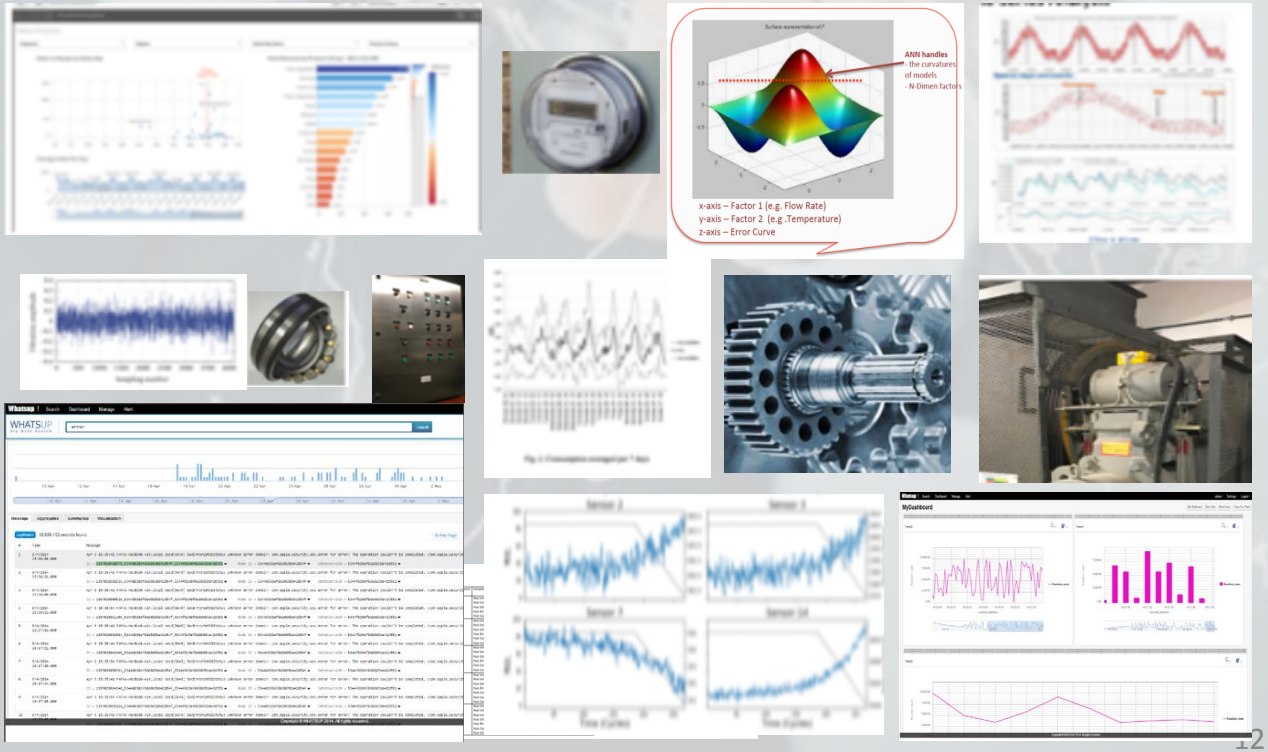
AI Preventive Maintenance

Objective:

- Predictive Analytics in Preventive Maintenance
- Data Collected from Mechanical Sensors such as Vibrations, Stress.
- By Analyzing time series, predict probability of Fault; root cause analysis; Prioritization of Maintenance Works; Preventive Maintenance

Methodology:

Deep Learning – Big Data Artificial Intelligence



Client References

AI in Predicting Trends

Airline Industry

AI – Customer Number Time Series Trend Prediction

Client: Airline clients

Objective:

- Predictive Analytics in Customer Number & Trends
- Data Collected from Different Flights Records, Flights Configuration, Destination, Airlines, Holidays, Events, Economics etc.

Achievement / Business Impact:

- Critical in Operation Team for resources planning
- Great Impact on the Profit / Loss of the Business in Control of Cost
- Important for the prevention of wastages of allocated resource

Methodology:

Deep Learning – Big Data
Artificial Intelligence

As requested by Client, pictures are not shown here.

Contact:

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Client References

AI in Revenue & Customer Strategy

Logistic Company

Big Data Customer Statistical Analytics: Revenue Growth Strategy and Retention Strategy

Client: Global Logistics Client

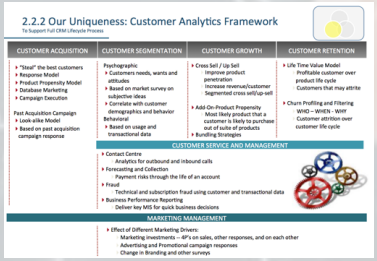
Objective:

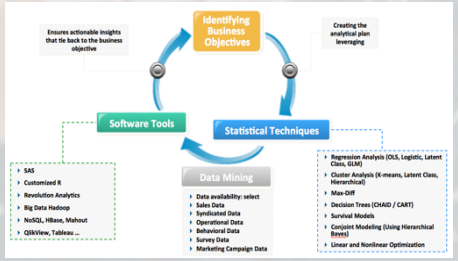
- Revenue growth of a client

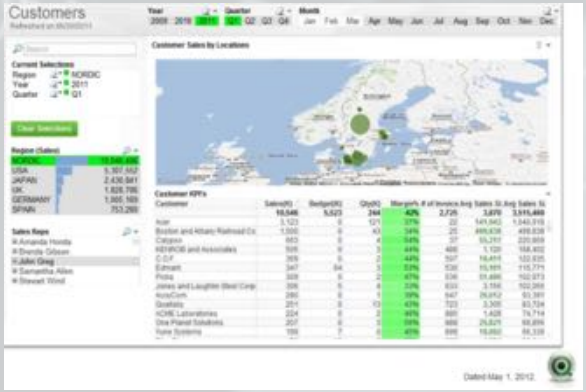
The work of Alan's team:

- Our team collects data from many touch-points of clients such as sales data, marketing, customer service data, phone call data, logistics delivery data, warehouse operation data, email data, social media and transaction data.
- Statistician analyzed the business scenario and designed the customer strategy using algorithms
- We deployed Big Data machine learning to automate the business strategy

Achievement: Client successfully raise revenue objective with good satisfaction







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Client References

AI in Image Document

(Document Image Classification, Information Retrieval)

Financial Institutions

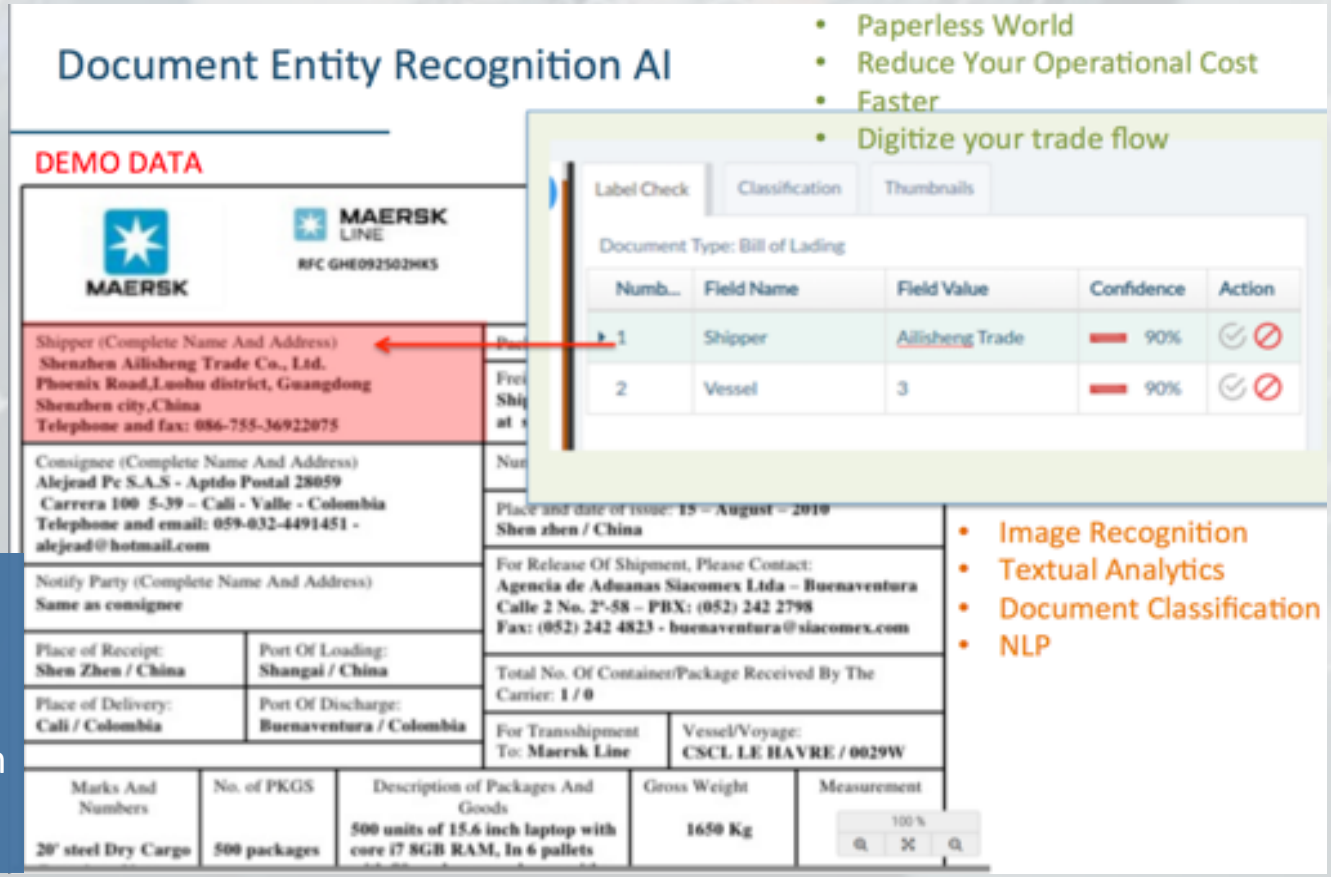
AI - Entity Recognition Engine (Paper-to-Electronic Module)

Methodology:

Deep Learning – Big Data + Artificial Intelligence

Objective:

- Big Variety of Document format cause rule-based OCR recognition difficult
- AI is used to OCR, recognize paper text and automate the data entry



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Client References

Big Data Recommendation

Online-offline Strategy

Global Retailer

Big Data Recommendation Engine and E-commerce

Objective:

- Upsell/Cross-sell the retailer's product in E-commerce and Brick-and-mortar.
- Provide predictive insights on suggesting product and items in online and offline shop.

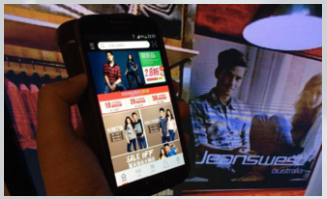
Offline-to-Online (O2O) retail customer upsell by using multi-touch-point data.

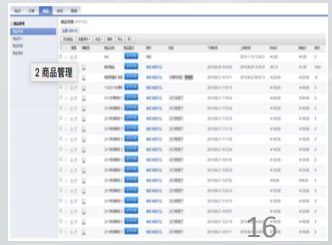
Algorithm Methodology:

- Collaborative Filtering and Statistical Analysis

The work of Alan's team:

- Project Manager and business consultant conduct business due diligence
- Our statistician use Statistical Modules to analyze the business and fine tune the parameters on the prediction model by mathematics
- Our software developers develop Big data machine learning modules to run the analysis
- Our system architect provide service for data management and planning for integrating client's existing infrastructure
- We develop and automate using Big Data Technology
- **Achievement: E-commerce revenue growth, O2O brick-and-mortar strategy insights**





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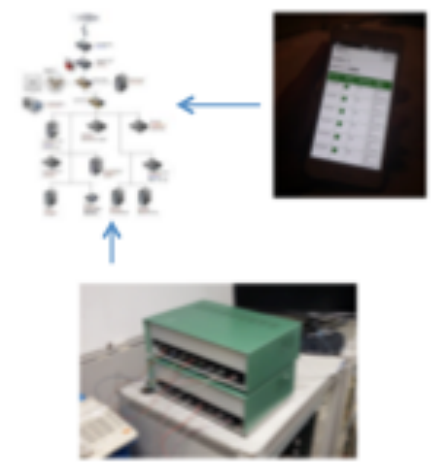
Client References

AI & Big Data Network Equipment Monitoring

[Telecom Operator]
Network Equipment Monitoring – Big Data on Telecom Sensors Network

Smart Meter Numeric Data Log Dashboard



Client Example

- MNC telecom Operator

Project Example

- **Telecom Equipment Tester:** Our Proprietary hardware telecom equipment
- **Mobile Application Front-end for Control:** Technicians can use the mobile phone to remotely control and monitor the telecom equipment and infrastructure

Big Data Analytics

- Use Big Data Technologies for large scale data collection from remote equipment and sensors.
- Use Classical machine learning algorithms for time series predictions

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Client References

[Logistics Association]

AI – Activity Recognition

[Manufacturing Clients]

Machine Motor Abnormality Detection & Predictive Maintenance (AI)

Client Example:

- Factory Plants with 150,000 sq feet
- **Machine Predictive Maintenance**

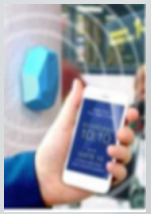
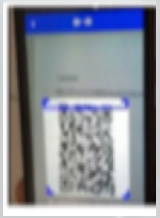
[Global Consultancy Clients]

AI – Chat-bot for Customer Service



[Shopping Mall]

Location-based Big Data Analytics in Shopping Mall

[Manufacturing Clients]

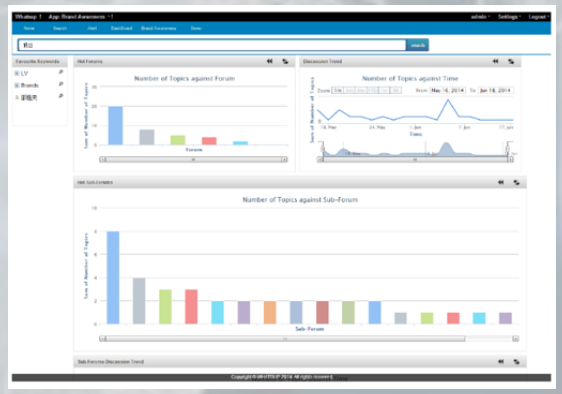
AI - Computer Vision for Food Picking with Robotics (Image Recognition)

[Manufacturing Clients]

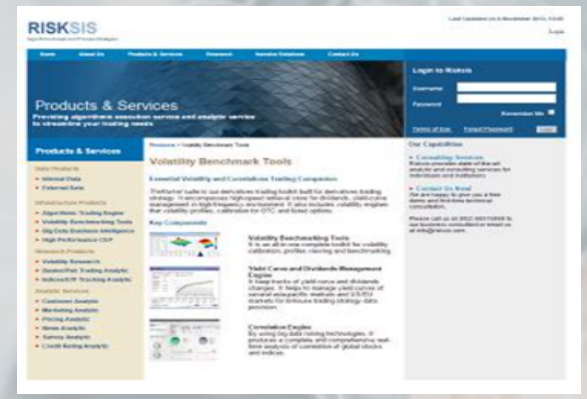
AI - Computer Vision for Traffic Objects

More Big Data / AI Product References

Big Data Social Media Data Search Engine

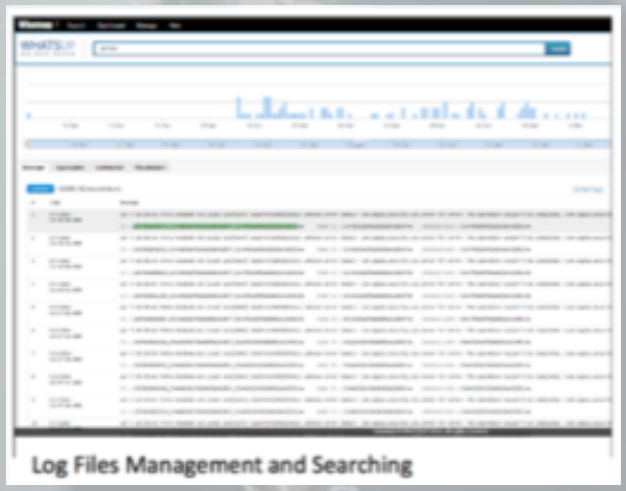


Wall-Street High-Frequency Trading Algorithmic Engine



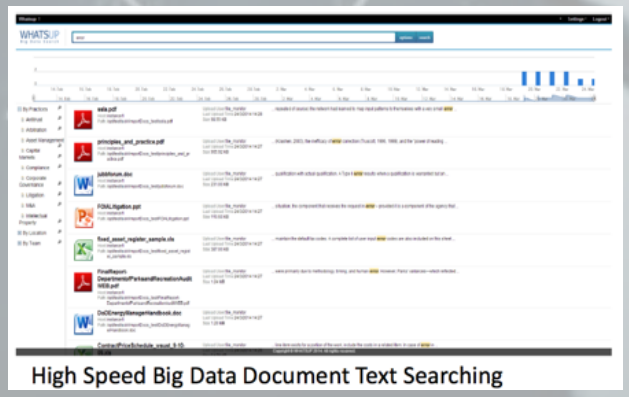
Secure Real-Time IP Phone System

Log Management



Log Files Management and Searching

Big Data Document Management System



High Speed Big Data Document Text Searching

Mobile Apps