Somasiri, Nalinda ORCID logoORCID: https://orcid.org/0000-0001-6311-2251 (2023) Research & Innovation. In: 2023 International Conference on Computer Communication and Informatics (ICCCI), 23-25th January 2023.

Downloaded from: https://ray.yorksj.ac.uk/id/eprint/7367/

Research at York St John (RaY) is an institutional repository. It supports the principles of open access by making the research outputs of the University available in digital form. Copyright of the items stored in RaY reside with the authors and/or other copyright owners. Users may access full text items free of charge, and may download a copy for private study or non-commercial research. For further reuse terms, see licence terms governing individual outputs. Institutional Repository Policy Statement

## RaY

Research at the University of York St John

For more information please contact RaY at ray@yorksj.ac.uk

# Research & Innovation

Est. 1841 YORK ST JOHN UNIVERSITY



By Dr Nalinda Somasiri- Head of Programme Computer Science

23<sup>rd</sup> January 2023



Est. 1841 YORK ST JOHN UNIVERSITY

# Pillars of Research & Innovation



Multidisciplinary: AI, ML, DL, HealthTech, DS, BM, Cyber, Edtech, IoT



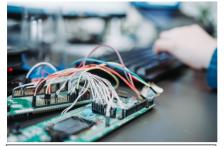
Deep-Research: 10 – 20 years life cycle, Innovation



Collaboration: Teamwork, Joint-Research, Research Freedom



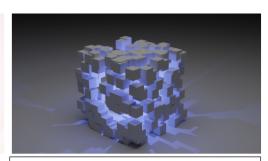
AI,ML & Computer Vision



IOT



Big Data



Blockchain

- Algorithms for image classification & NLP
- Autonomous Driving Projects
- Agro Al
- Application in Automotive

- Smart home automation
- Health monitoring
- Smart cities
- Connected Cars

- Predictive analytics for healthcare
- Social media sentiment analysis
- Fraud detection
- Climate change modelling
- Recommender systems

- Decentralized finance (DeFi)
- Supply chain management
- Medical record keeping
- Land registration

## OUR DATA SCIENCE & COMPUTER SCIENEC TEAM

Est. 1841 YORK ST JOHN UNIVERSITY

AI/ML Lead
DR REBECCA
BALASUNDARAM



Head of Programme

DR NALINDA SOMASIRI



Research Lead
DR SOONLEH LIN

Big Data Lead DR GAYATHRI KARTICK



Disse

Dissertation Lead

MS SWATHI

GANESAN

Paragon Research and Innovation is a new multidisciplinary research group. Currently has about 30 researchers

YORK ST JOHN UNIVERSITY

#### **AUTOMOTIVE**

Object Detection, Vehicle Exterior Lighting, ANPR, Autonomous Driving

# WIRELESS COMMUNICATION

Channel Modelling, Resource
Allocation, User behavior
prediction, Network Security,
MIMO Optimization

#### **AGRICULTURE**

Crop Yield Prediction, , Precision Farming, , Weed & Pets Detection, Drought Prediction, Livestock Monitoring

#### HEALTH

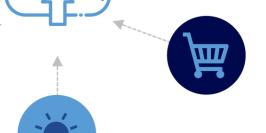
Medical imaging analysis, Genomics, Clinical decision support systems, Patient Monitoring Systems

#### FINANCE

Fraud Detection, Risk Management, Forecasting, Credit Scoring, Digital Identity Verification

#### **RETAIL**

Product Recommendation, Customer Segmentation, Marketing, Supply Chain Optimization, Image & Video Analysis





YORK ST JOHN UNIVERSITY

#### Al & Data Science Research at York St John University

#### Collaboration with UK & International Universities



























©2023 Paragon Research Group - York St John London Campus

GREEN UNIVERSITY TOWN

## AI/ML- Object Detection on Adaptive Beam Forming Headlights (ADB)







YORK ST JOHN UNIVERSITY

#### **Concept Car Solution**

7 camera car solution

5 Video cameras

Top Front (in light-bar)

Rear (in rear bumper)

Internal passenger camera

4 ANPR cameras

Front-right

Front-left

Rear-right (side-facing)

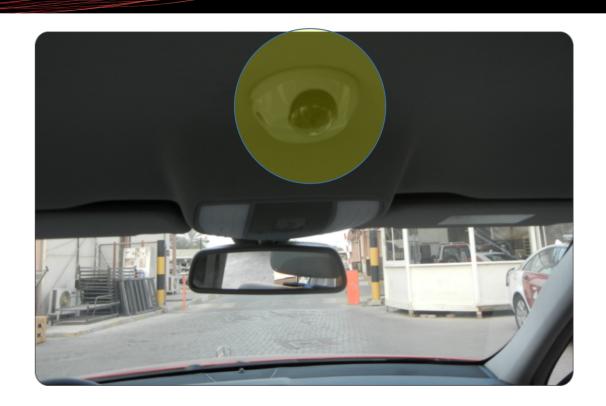
Rear-left (side facing)



Rear Mount Camera



Front Facing Camera



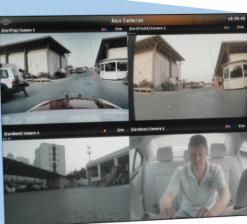
#### Surveillance Cameras



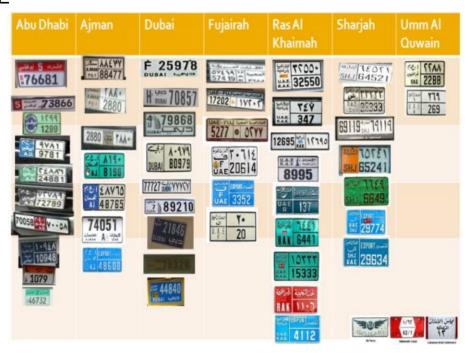


Vehicle Video & ANPR clients





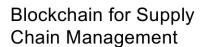
#### Plate Read in UAE

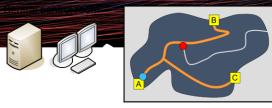


### Industrial Collaboration Projects Motorola Solutions UK

Est. 1841

YORK ST JOHN UNIVERSITY





Warning: Vehicle Off route. ALARM!!: Load tampered with.





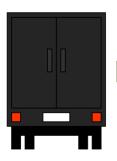




• Removes trackers













- Records drivers
- Attaches tracker
- Seals doors
- Prints docs
- Launches trip







Est. 1841 YORK ST JOHN UNIVERSITY

