

## end-to-end UAV Research and Development



### Computer aided engineering

UAV development in Kingston relies on expertise across the spectrum of computer aided engineering, simulation and modelling. Our work is supported by 2 wind tunnels capable of addressing any aerodynamic requirement.

- FEA and CFD analysis
- Dynamic and transient modelling
- Component design and optimisation

### The difference we can make

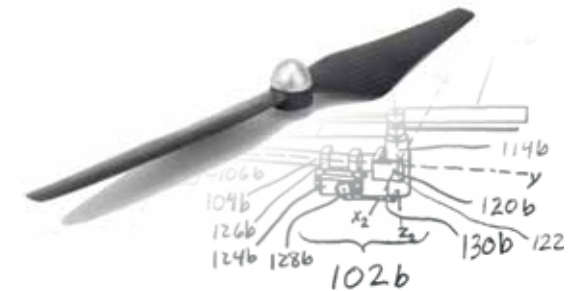
- Enhance your UAV's flight performance, manoeuvrability and safety
- Develop advanced sensing, inspection, detection, communication and decision-making abilities
- Create custom and efficient artificial intelligence solutions that allow your platform to constantly learn and adapt
- Revolutionise your asset, infrastructure and disaster management efficiency
- Obviate the need for time-consuming, laborious or dangerous processes through custom, automated routines and missions
- Increase inspection and evaluation efficiency and safety
- Reduce costs across a wide range of operational contexts

### Contact us

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Your partner in  
UAV research  
and development



■ School of Mechanical  
and Automotive Engineering

■ School of Computing  
and Information Systems



modelling and design / flight solutions / control strategies / sensing and communication / artificial intelligence

## Decades of UAV and imaging research at your doorstep

Kingston University London combines expertise across the entire range of Unmanned Aerial Vehicle (UAV) solution development.

Our research can help you deal with a wide range of needs, by either advancing your existing UAV technology or by developing new, customized and efficient solutions for your conventionally dangerous, expensive or labour-intensive operations.

Kingston custom UAV solutions are multidisciplinary, including not only UAV design and flight optimisation, but also artificial intelligence and machine learning, remote sensing, computer vision, anomaly detection, wireless communication and computer aided engineering.

Our expertise means we can help you address the challenges you are facing faster and more efficiently, for quad, hexa and octa-rotor technologies.



## Manoeuvrability, navigation and recovery

Kingston can help your platform achieve better navigational abilities and manoeuvre agility, but also help make sure it returns back safely in the event of failure.

- Enhanced manoeuvrability through gyroscopic and lifting force variation solutions
- Low-level and/or obstructed area flight solutions
- Advanced control strategies for platform recovery in the event of rotor/motor failure
- Pitch stability and oblique active tilting technologies
- Advanced navigation and localisation solutions
- Correction of INU drifting
- Differential GPS technologies
- Image-based and optical flow localisation

## Sensing and communication

Kingston offers decades of image, video analytics and computer vision expertise. This analytical power can help you develop the level of unmanned intelligence and UAV autonomy your business really needs. We can also help you design and implement custom ground-UAV communication solutions based on decades of internationally recognized wireless communication expertise.

- Multi- and hyperspectral imaging
- Image quantification, evaluation and decision making
- Computer vision, video analytics and intelligent surveillance
- Motion, behaviour, person and vehicle detection and tracking
- Ground station, uplink and downlink communication strategies
- 2D and 3D error resilient streaming and adaptive logic
- Mission control strategies

## Anomaly detection

An ability to detect anomalies efficiently means you can outperform competition in a vast range of asset inspection, surveillance and emergency contexts.

Here are just a few examples of anomaly detection themes we can help you deliver:

- Damage and wear assessment, surveillance, security and disaster management
- High voltage tower inspection
- Rail and fleet assessment
- Pipe network inspection
- Gas leak detection
- Wind turbine fault and damage detection
- Emergency and catastrophe inspection, compartment fire and tactical fire ventilation visualisation
- Water and land-based survivor/casualty localisation / search and rescue support

