



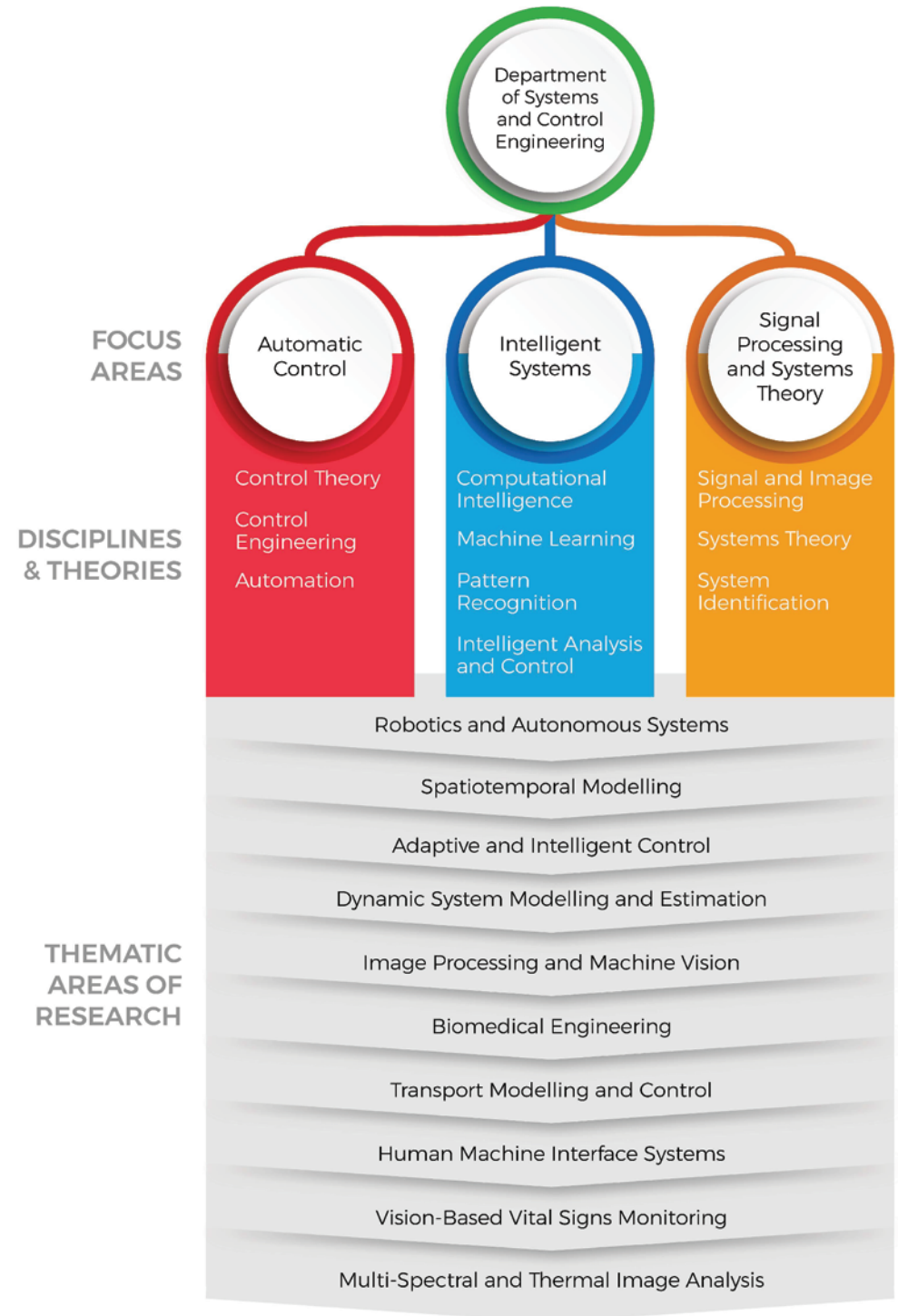
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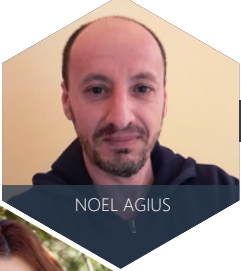
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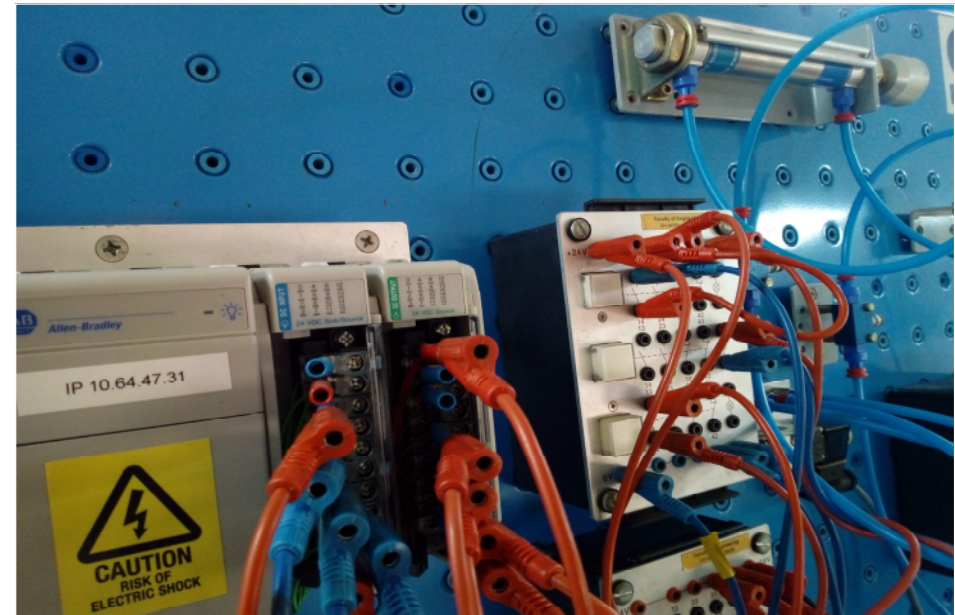


SANCHIA CILIA LENTINI

Industrial-standard automation

- Modular Programmable Logic Controllers (PLCs)
- PROFIBUS (Process Field Bus)
- Digital inputs and outputs
- Human - Machine Interface (HMI) terminals
- Automation programming software
- Automation simulation software
- Pneumatic systems operated with pneumatic solenoid valves and pneumatic cylinders among other components.

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Robotic Systems

- Unmanned Ground Vehicles (UGVs) furnished with a number of sensors such as laser range finders, inertial measurement units (IMUs) and sonar sensors
- Smart wheelchair furnished with an onboard computer
- Autonomous navigation platform
- Laser range finder and sonar sensors
- Unmanned Aerial Vehicles (UAVs) namely, a quadcopter
- Three manipulators with servo grippers and controllers
- Swarm of robots
- Educational modular robot assembly kits

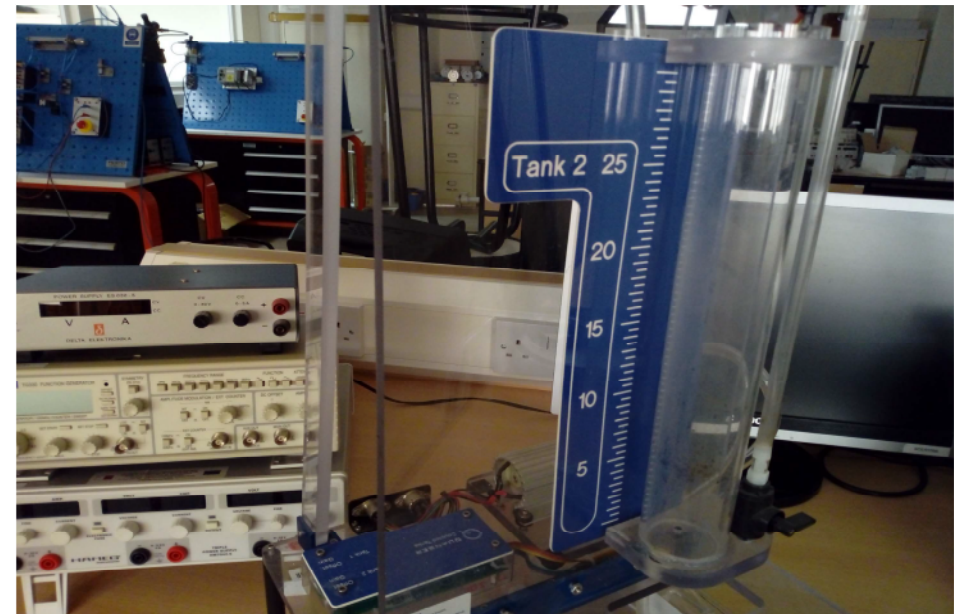
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Design and integration of control systems

- Embedded PCs and real-time interface boards (dSPACE)
- PC interfaced DC servomechanisms
- Liquid level process control units

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Intelligent Transportation Systems

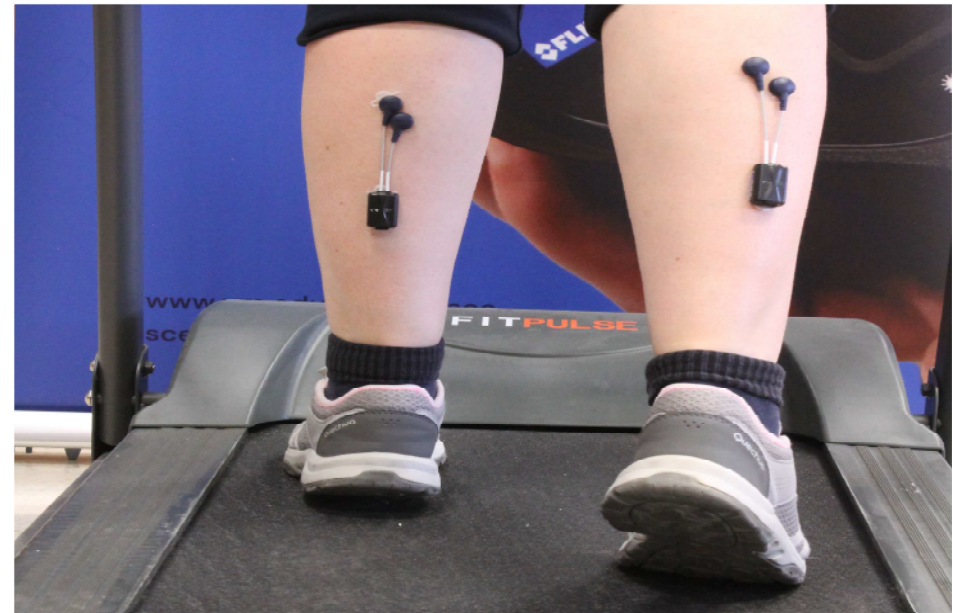
- Air quality monitoring sensors with online access for real-time data monitoring in indoor and outdoor environments.
- A number of traffic counters for traffic monitoring and analysis
- A selection of traffic simulation software for transport simulation

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Biomedical Engineering

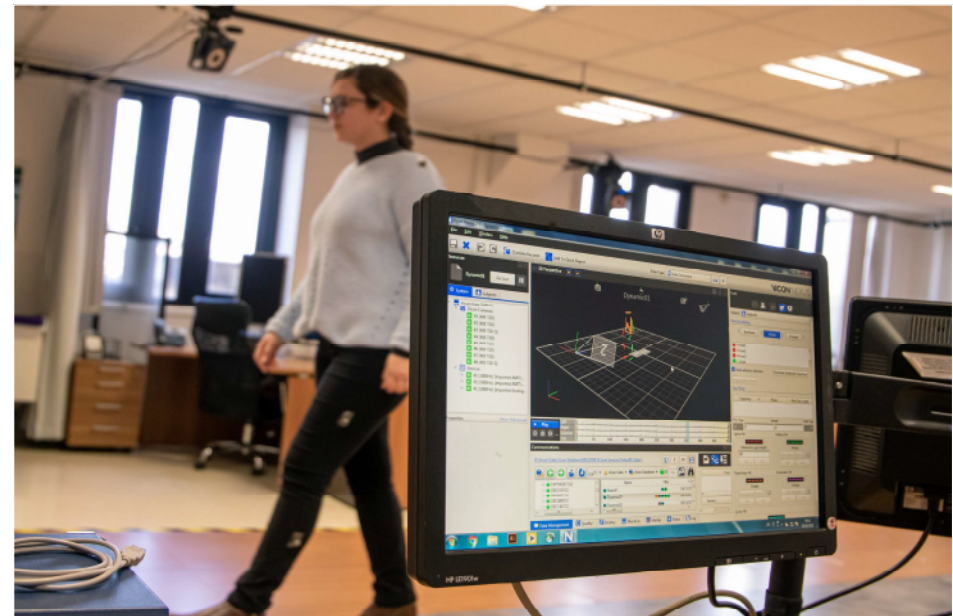
- Optical motion tracking system.
- An advanced research grade thermal camera with 0.02°C sensitivity and a wide variety of handheld thermal cameras with different capabilities including Wi-Fi connections and dual full colour video and thermal image overlay.
- Various equipment for brain signal (electroencephalography – EEG) data acquisition. Equipment ranges from wireless for simple applications to more advanced, wired and wireless systems using wet or dry electrodes for research.
- Dedicated secluded room for EEG signal acquisition.
- Wired and wireless electrooculogram (EOG) measurement equipment.
- Research grade diagnostic ultrasound machine.
- High density EEG and muscle recruitment (electromyogram – EMG) wired system.
- 10-channel and 32-channel wireless EMG system.
- A modular data acquisition and analysis system for the acquisition of a wide variety of physiological signals for life science research. Modules available include sensors such as finger pulse oximeter, electrocardiogram (ECG), skin surface thermistors, respiration belt, a number of twin and single axis goniometers, hand dynamometer and a non-invasive blood pressure amplifier amongst others.
- Body (foot, hand, body) pressure measurement system, also providing real-time information on pressure distribution and centre of force trajectory for seating and positioning.
- Haptic feedback system.



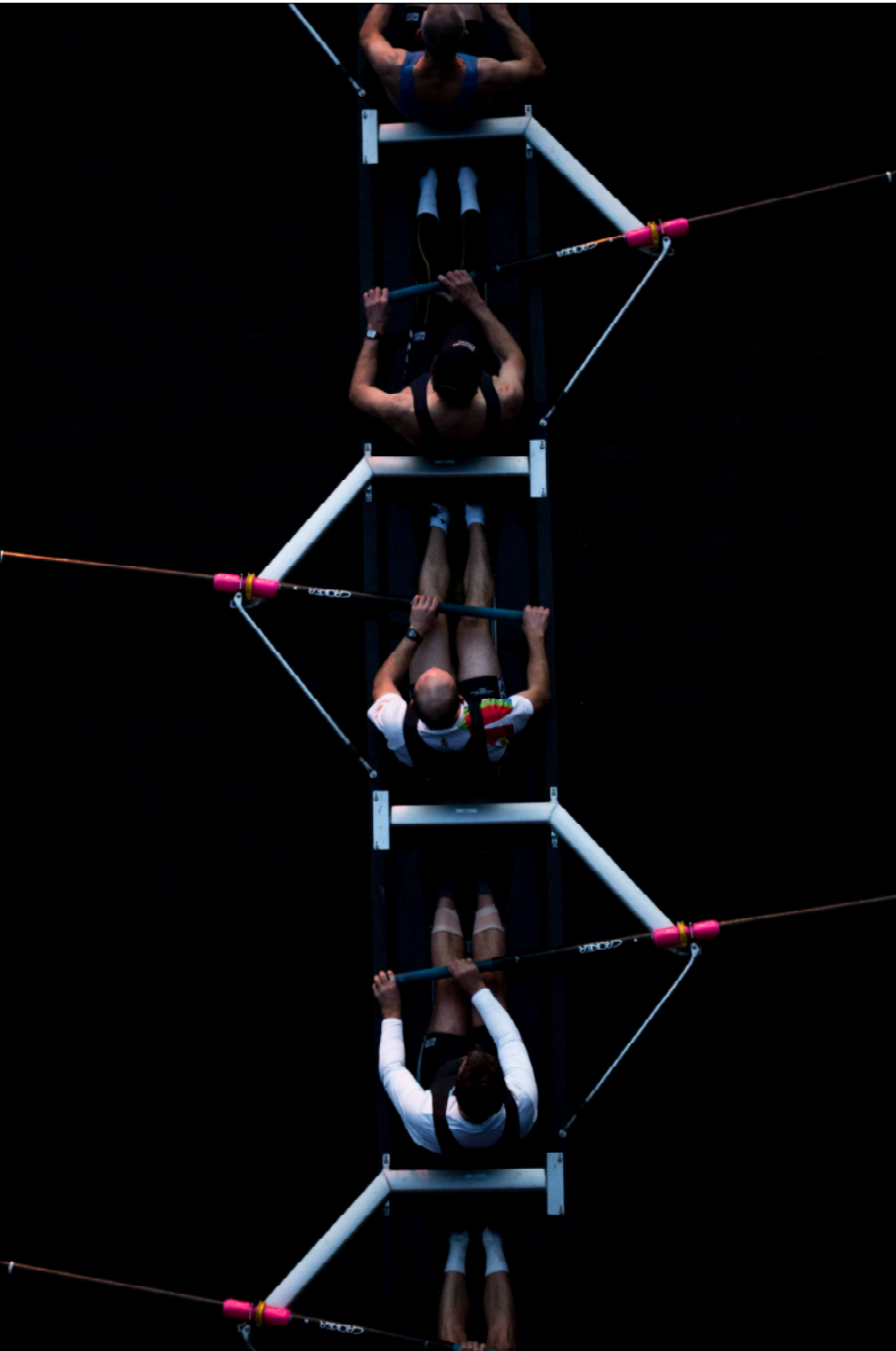
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Signal and Image Processing

- Full desktop high definition CCTV system in a box, with all the benefits of a connected server for high definition or megapixel cameras, allowing multiple megapixel video streams to be viewed and recorded simultaneously in high definition. Also including a number of CCTV cameras.
- Kinect (RGB-D) cameras, stereo-vision and multi-view vision set-ups.
- Various industrial cameras, lenses, optical filters, machine vision lighting systems and pan-tilt mechanisms.
- Thermal cameras and hyper-spectral (multi-spectral) cameras spanning the near infrared and visual bands.
- Various head-mounted displays for virtual and augmented reality.
- Inertial Measurement Units (IMUs), treadmill and motion and gesture capture systems used in particular for human motion analysis.
- Eye-gaze tracking system.
- Various biometric systems such as iris recognition and fingerprint recognition systems.
- NVIDIA Geforce GTX 1080 Ti GPU, NVIDIA RTX 2080 Ti GPU and NVIDIA RTX 3080 GPU systems.
- Signal acquisition boards and signal processing boards.
- Yamaha Clavinova CLP635 digital piano for research in music technology.



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The Department welcomes ideas for collaborations.

Do get in touch!

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