

# Dr Kow Jun Wai

Medical Device Development Engineer

PhD Mechanical Engineering in Soft Robotics: Surgical Technologies & Medical Devices

BEng, MSc Mechatronics & Robotics Engineering

[Email](#)

[LinkedIn](#)

[Web CV](#)

Tel: +4407741151955

## Work Experience

### Medical Device Development Engineer – Atlas Endoscopy (Aug.2020 – Present)

Lead systems developer, device integration, and management of operator controls on a robotic endoscope platform. Role includes development of bespoke phantom colon simulator, product design and development, and medical device regulations (MDR) documentation for a novel robotic arm assisted endoscopic capsule device.

Atlas Endoscopy, UK, spin-off company from STORM Labs, University of Leeds.

- Responsible for MDR activities: Detailed design reviews, including complete performance design FMEAs for regulatory board submission and review (MHRA, UK; IRB/FDA, US).
- Led cross functional implementation change control management process based on design reviews.
- Led usability and validation tests with clinical staff to assess efficacy of product design requirements.
- Correlate system management with key stake holders.
- Sourcing and selection of suppliers, along with consulting with third party contractors for quality control and mass manufacturing.
- Device development and integration with existing NHS Hospital capabilities (Leeds General Infirmary, Leeds (UK); St James University Hospital, Leeds (UK); Vanderbilt University Medical Center, Nashville (US).
- Overall development functionality and effectiveness of designed systems.
- Regulation Standards Applied:  
ISO 13485, IEC 60601, ISO 8600, ISO 14971, ISO 15189, ISO/IEC 17025, ISO 10218
- Led as a systems and software engineer for the development of a colon simulator training kit from ground up.

### Research Associate in Medical Device Development – STORM Labs (Oct.2019 – Aug.2020)

Prior to completion of my PhD, was scouted into a budding spin-off company to drive the development of a robotic endoscope platform and design system integration devices to existing hospital technologies and operations for clinical investigation.

- Design engineer to develop an ergonomic hand-held device with on-board electronics for controlling a 6-DOF robotic arm (LBR MED - KUKA Robotic Arm).
- Integration of medical standard endoscopic ancillary functions onto a bespoke hand-held device of a robotic platform.
- Test engineer to validate developed prototypes and demonstrate functionality and effectiveness of system parts.
- Performed risk management plan, assessment, and analysis on project sub-systems.
- Manage the operation effectiveness for system development and deployment.
- Pre-clinical assessment of developed systems in animal and/or cadaveric models in collaboration with clinical partners.
- Provide guidance, assistance, and expertise on bespoke soft-manufacturing methods to on-going research work in STORM Labs.
- Regulation Standards Applied: ISO 13485, ISO 8600, IEC 6060-1

## University of Leeds

### Teaching Assistant (Sept.2013 – Sept.2019)

Teaching assistant and Laboratory demonstrator to lecturers to provide guidance to students and oversee teaching materials during laboratory sessions.

### Research Assistant in Soft Robotic Devices (Oct.2015 – Oct.2016)

Developing new methods for sensing and actuation in soft robotics while aiding on-going research work for PhD students and research staff within the Surgical Technologies Laboratory (now Healthcare Mechatronics, 2021).

- Responsible for the deployment, calibration and maintenance of several test and measurement platforms in the laboratory (e.g., Instron Tensile Tester, Keyence Optical Microscope, ThorLabs linear actuation stages and optical/laser measurement platform).

- Programmatically designed DAQ software via NI LabVIEW onto test & measurement platforms for data collection, analysis, and output.
- Provided scientific and engineering expertise to solve problems and perform statistical analysis of data to support device/development projects
- Responsible for operations, maintenance, and user-training of several manufacturing equipment in the laboratory (e.g., Vacuum-Cast machine, Laser cutter/engraver, Centrifugal mixer, Liquid dispenser, 3D printers (FDM, SLA, SLS)).
- Managed general operations in-line with University's laboratory standards and health & safety requirements.
- Assisted in identification, procurement, development of needed laboratory consumables, manufacturing, and test equipment.
- Test device and platform development and integration with existing NHS Hospital capabilities (Leeds General Infirmary, Leeds (UK); St James University Hospital, Leeds (UK)).

#### **Research Intern** (Jul.2015 – Sept.2015)

An EPSRC funded research internship project to develop soft robotics in the field of surgical technologies at the University.

#### **Peer Mentor/Student Guide** (Sept.2013 – Sept.2017)

Showcasing student projects and to help and guide parents and prospective students around the department. Pastoral support to first year students in the school at the University.

### **Education**

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#### **University of Leeds, School of Mechanical Engineering (UK): 2016-2020**

PhD Mechanical Engineering in Soft Robotics: Surgical Technologies

Thesis Title: [Development of a Fabrication Technique for Soft Planar Inflatable Composites](#)

#### **University of Leeds, School of Electronics & Electrical Engineering (UK): 2014-2015**

MSc Mechatronics & Robotics Engineering- *Pass with Distinction*

MEIBioEng15: [Towards Self-Tuning Lower Limb Prosthesis](#)

#### **University of Leeds, School of Electronics & Electrical Engineering (UK): 2011-2014**

BEng Mechatronics & Robotics Engineering- *First Class Honours*

Dissertation Title: [Artificial Intelligence Based Control on a Solar Energy System](#)

#### **SEGi University College (Malaysia): 2010-2011**

Foundation in Science- **3.24/4 CGPA**

### **Certification & Training**

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- Quality Management System for Medical Device Directives - PA Consulting, UK
- Certified SOLIDWORKS Associate (CSWA) Graphic
- Certified LabVIEW Associate Developer (CLAD), National Instruments UK & Ireland
- Code-cademy- Web Development (HTML, CSS, JavaScript) and Python 2/3
- ALLSAFE-Food Hygiene Distance Learning course, Advance Food Safety Ltd, UK

### **Interests & Skills**

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- **Manufacturing Experience:** Additive manufacturing (FDM, SLA, SLS, CL); Laser cutting/engraving; CNC machining; Vacuum casting; Moulding and Casting (Including Extrusion, Die and Injection);
- **IT Competency:**
  - **Programming languages:** C/C++ ; MATLAB; NI LabView; Python; HTML; CSS; ROS;
  - **Computer Aided Design:** Solidworks; SketchUP; OpenSCAD; Autodesk Fusion 360;
  - **Graphic Design:** Adobe Illustrator; CorelDRAW; Inkscape;
  - **Electrical/Electronic Design:** NI Multisim; Eagle PCB;
  - **Finite Element Analysis (FEA):** Abaqus FEA.
- **Productivity:** Microsoft Office suite- Slack; Trello; Obsidian; VSCode, Notion.
- **Languages:** English, Malay, Verbal communication of Mandarin, Cantonese (Dialect), Hakka (Dialect) and Japanese