

# Summer School on Surgical & Interventional Engineering

## 5<sup>th</sup> June 2023 – 9<sup>th</sup> June 2023

### King's College London, UK

#### Location

SIE Facilities, St. Thomas' Hospital, Westminster Bridge Rd, London SE1 7EH

#### Programme

All invited talks last 45mins, to allow for 15mins of questions.

Group projects will comprise 3-4 attendees, assigned the first day according to interest

| Monday 5 <sup>th</sup> June 2023 (Chair: Wenfeng Xia) |                                                                                                                            |
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| 8:00 – 9:00                                           | <b>Coffee and Registration</b>                                                                                             |
| 9:00 – 9:30                                           | <b>Welcome and Introduction to BMEIS, SIE and MedTech Hub</b><br>Prof. Sebastien Ourselin<br>King's College London, UK     |
| 9:30 – 10:00                                          | <b>General Health &amp; Safety Induction</b><br>Moderator: Marty Rajaratnam<br>King's College London, UK                   |
| 10:00 – 11:00                                         | <b>Student Introductions</b><br>Moderator: Dr. Wenfeng Xia<br>King's College London, UK                                    |
| 11:00 – 12:00                                         | <b>The Digital Future of Surgery</b><br>Prof. Prokar Dasgupta (King's College London)                                      |
| 12:00 – 13:00                                         | <b>Lunch Break (Provided On-Site)</b>                                                                                      |
| 13:00 – 14:00                                         | <b>Innersight: A Medical Devices Entrepreneurial and Translational Journey</b><br>Dr. Eion Hyde (Innersight)               |
| 14:00 – 15:00                                         | <b>Evaluating Early-stage Technology for Translation</b><br>Dr. Haijie Tan (Beijing Institute of Collaborative Innovation) |
| 15:00 – 17:00                                         | <b>Facility Tour &amp; Introduction to Projects</b>                                                                        |
| 17:00 – 18:00                                         | <b>Project Selection &amp; Planning</b>                                                                                    |

| <b>Tuesday 6<sup>th</sup> June 2023 (Chair: Christos Bergeles)</b> |                                                                                                                          |
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| 9:00 – 11:00                                                       | <b>Refreshments Available in the Kitchen</b>                                                                             |
| 9:00 – 11:00                                                       | <b>Group Projects in SIE Facilities</b>                                                                                  |
| 11:00 – 12:00                                                      | <b>Regulatory Considerations over the Medical Device Lifecycle</b><br>Ms Hannah Leadbetter (King's College London)       |
| 12:00 – 13:00                                                      | <b>Taking Research to the Clinic</b><br>Dr. Valentina Vitiello                                                           |
| 13:00 – 14:00                                                      | <b>Lunch Break (Provided On-Site)</b>                                                                                    |
| 14:00 – 15:00                                                      | <b>Brining Technology into the Clinical: Applications to Neurosurgery</b><br>Mr. Jonathan Shapey (King's College London) |
| 15:00 – 16:00                                                      | <b>Device Manufacturing for Clinical Translation</b><br>TBD                                                              |
| 16:00 – 18:00                                                      | <b>Group Projects in SIE Facilities</b>                                                                                  |

| <b>Wednesday 7<sup>th</sup> June 2023 (Chair: Lukas Lindenroth)</b> |                                                                                                              |
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| 9:00 – 11:00                                                        | <b>Refreshments Available in the Kitchen</b>                                                                 |
| 9:00 – 11:00                                                        | <b>Group Projects in SIE Facilities</b>                                                                      |
| 11:00 – 12:00                                                       | <b>Surgical Robotics in the Hamlyn Centre: a MIM Lab Perspective</b><br>Prof. Ferdinando Rodriguez y Baena   |
| 12:00 – 13:00                                                       | <b>Focused ultrasound for targeted drug delivery into the brain</b><br>Dr. Antonios Pouliopoulos             |
| 13:00 – 14:00                                                       | <b>Lunch Break (Provided On-Site)</b>                                                                        |
| 14:00 – 15:00                                                       | <b>Soft Robotic Medical Devices: Advancements, Applications, and Impact</b><br>Prof. Helge Wurdemann         |
| 15:00 – 16:00                                                       | <b>Adaptive and interactive soft robotics for medical interventions</b><br>Dr. Lukas Lindenroth              |
| 16:00 – 17:00                                                       | <b>Robotics contributions for minimally invasive surgery and targeted therapy</b><br>Prof. Arianna Menciassi |
| 17:00 – 18:00                                                       | <b>Group Projects in SIE Facilities</b>                                                                      |

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| 20:00 – 23:00 | <b>Summer School Dinner</b> (reservation under King's College London) |
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| <b>Thursday 8<sup>th</sup> June 2023 (Chair: Rachel Sparks)</b> |                                                                                                                                 |
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| 9:00 – 11:00                                                    | <b>Refreshments Available in the Kitchen</b>                                                                                    |
| 9:00 – 11:00                                                    | <b>Group Projects in SIE Facilities</b>                                                                                         |
| 11:00 – 12:00                                                   | <b>Compter Assisted Planning and Simulation for Surgical Guidance</b><br>Dr. Rachel Sparks (King's College London)              |
| 12:00 – 13:00                                                   | <b>Image Guided Surgery of the Abdomen</b><br>Prof. Matthew Clarkson (University College London)                                |
| 13:00 – 14:00                                                   | <b>Lunch Break (Provided On-Site)</b>                                                                                           |
| 14:00 – 15:00                                                   | <b>From Uni- to Multi-modal Artificial Intellegence to Understand Surgery</b><br>Dr. Alejandro Granados (King's College London) |
| 15:00 – 18:00                                                   | <b>Group Projects in SIE Facilities</b>                                                                                         |

| <b>Friday 9<sup>th</sup> June 2023 (Chair: Wenfeng Xia)</b> |                                                                                                                                                   |
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| 9:00 – 11:00                                                | <b>Refreshments Available in the Kitchen</b>                                                                                                      |
| 9:00 – 10:00                                                | <b>Preparing Group Projects Presentations</b>                                                                                                     |
| 10:00 – 11:00                                               | <b>Photoacoustic Imaging for Surgical Guidance</b><br>Dr. Wenfeng Xia (King's College London)                                                     |
| 11:00 – 12:00                                               | <b>Super-resolution Ultrasound Localisation Microscopy to Imaging Microvascular Flow in vivo</b><br>Prof. Mengxing Tang (Imperial College London) |
| 12:00 – 13:00                                               | <b>All-optical Ultrasound Imaging and Sensing in Interventional Guidance</b><br>Prof. Adrien Desjardins (University College London)               |
| 13:00 – 14:00                                               | <b>Lunch Break (Provided On-Site)</b>                                                                                                             |
| 14:00 – 15:00                                               | <b>Endoscopic Microscopy and Optical Coherence Tomography</b><br>Dr. Michael Hughes (University of Kent)                                          |
| 15:00 – 16:00                                               | <b>Surgical Imaging and Biophotonics</b><br>Prof. Daniel Elson (Imperial College London)                                                          |
| 16:00 – 16:45                                               | <b>Final Group Presentations</b>                                                                                                                  |
| 16:45-17:00                                                 | <b>Farewell</b>                                                                                                                                   |
| 17:00 – 19:00                                               | <b>Leaving Drinks &amp; Nibbles</b>                                                                                                               |