Day 0

17:30-19:30 Welcome Reception and Registration (bar/café Chuckaboo 5min walk from venue)

Day 1

Upper Auditorium

Time	Session
08:00	Registration (Reception Desk Entrance Main Concourse)
09:15 - 09:30	Opening Speech
09:30 - 10:15	Plenary Presentation by Prof. Sarah Stock: In Utero- a multidisciplinary program to reduce stillbirth
10:15 - 11:00	Break and Poster Session
11:00 - 12:30	Oral Presentation

Theme 1: Cell/Tissue Engineering — Chair: Prof Gwen Reilly co-chair C Fricker

Time	No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
11:00 - 11:15	O1	Engineering genetic circuits to promote tumour allow injection for immunotherapy of solid	12	Srinivas Balagopal	Imperial College London
11:15 - 11:30	O2	Combined pressure and rigidity sensing determine vascular smooth muscle cells phenotype in atherosclerosis	13	Thomas Iskratsch	Queen Mary University of London
11:30 - 11:45	O3	Animal-free collagen: from cells to gels	128	Chris Wright	Swansea University
11:45 - 12:00	O4	Integrating experiments and mathematical modelling to quantify therapeutic cell behaviour in nerve tissue engineering	24	Maxime Berg	Imperial College London
12:00 - 12:15	O5	Primary cells-derived lung organoids display self-organisation	35	Mael DW Darjean	University of Leicester
12:15 - 12:30	O6	Design of an organ-on chip model of soft-hard tissue interfaces	18	Chiara Da San Martino	Queen Mary University of London

Time	Session
12:30 - 13:15	Lunch Break
13:15 - 14:45	Oral Presentation

Theme 2: Data Analysis, Machine Learning & AI — Chair Prof Damien Lacroix co-chair I Polydoros

Time	No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
13:15 - 13:30	O1	Deep residual graph convolutional networks for haemodynamic metric prediction	10	Alexander Drysdale	Swansea University
13:30 - 13:45	O2	Modulation of activity in the male prefrontal cortex highlights estrogen neuroprotection	49	Evangelos Delivopoulos	University of Reading
13:45 - 14:00	O3	An information-theoretic approach to parameter identification in models of ion channel kinetics	11	Matthew W Jennings	Swansea University
14:00 - 14:15	O4	Improved optimisation method for a cardio-pulmonary simulator to individual patient data	112	Sonal Mistry	University of Warwick
14:15 - 14:30	O5	Fast, objective methods for detecting evoked responses	120	David Martin Simpson	University of Southampton
14:30 - 14:45	O6	A framework for epilepsy detection	168	Tijana Petrovic	University of Oxford

Time	Session
14:45 - 15:15	Break
15:15 - 16:00	Plenary Presentation by Prof. Tony Cass
16:00 - 17:30	Oral Presentation

Theme 1: Cell/Tissue Engineering — Chair Dr Chris Wright co-chair C Fricker

Time	No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
16:00 - 16:15	O1	Human vascularised synovium-on-a-chip: a mechanically stimulated, microfluidic model to investigate synovial inflammation and monocyte recruitment.	48	Timothy Hopkins	Queen Mary University of London
16:15 - 16:30	O2	High-content microfluidic platform for measurement of Schlemm's canal endothelial	69	Nidhi Sinha	Imperial College London
16:30 - 16:45	O3	Bovine fibroblast-derived synoviocytes modulate the inflammatory response of chondrocytes in a mechanosensitive manner	64	Dariel Jurado Terrazas	Queen Mary University of London
16:45 - 17:00	O4	Rapid prototyping of a time-lapse compatible microfluidic embryo culture device for embryology and IVF	89	Elena Mancinelli	University of Leeds
17:00 - 17:15	O5	An exposure system to deliver defined doses of ultrasound to cells	246	Dhanak Gupta	University of Birmingham

Time	Session
17:30 - 18:00	Poster Session
1800-1900	Pre-Dinner Drinks
19:00-19:30	
19:30	Dinner & Live Music (Main Auditorium)

VIP Lounge

Theme 2: Data Analysis, Machine Learning & AI — Chair Dr Rowan Brown co-chair I Polydoros

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Modelling of HIV-1 stochastic dynamics in a CD4 T cell and IFN response	135	Igor Sazonov	Swansea University
O2	Temporal image registration using anatomy-guided adversarial deep learning	212	Md Kamrul Hasan	Imperial College London
O3	Parametrisation of two foot bones: calcaneus and medial cuneiform for the purpose of flatfoot surgery planning	183	Yanni Cai	Cranfield University
O4	AI-driven model based on transformer architecture for accurate and efficient kidney biopsy analysis	187	Zhongwang Li	University College London
O5	Machine Learning enhanced droplet microfluidics	190	Francesco Del Giudice	Swansea University

Theme 5: Biomedical Imaging & Image Processing — Chair Prof Hiroshi Ogata co-chair D Kennet

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	The human organ atlas in health and disease imaged with HiP-CT	143	Claire L Walsh	University College London
O2	Fracture mechanics of cortical bone at the microscale by SRμCT imaging and digital volume correlation	39	Marta Peña Fernández	Herriot-Watt University
O3	Depth-dependent gradient of collagen ultrastructural organisation and responses to mechanical loading in articular cartilage	177	Jingrui Hu	University of Exeter
O4	Deepometry – an opensource software for the application of supervised and weakly supervised deep learning to single cell images.	205	Eloise Smith	Swansea University
O5	MECHASCAN- Novel real-time non-invasive optical imaging modality for mechanical property analysis	120	Kerime Ebrar Okur	University of Birmingham
O6	Development of a low cost ultrasound phantom of the femoral vein	224	Carlo Saija	King's College London

Theme 5: Biomedical Imaging & Image Processing — Chair Dr Antonio Fratini co-chair T Pritchard

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Quantifying the accuracy of biplane video X-ray and magnetic resonance imaging to measure in vivo tibiofemoral joint motion	36	Lauren Swain	Cardiff University
O2	Objective nasal obstruction grading with anterior nasal endoscopy using deep learning	39	Nonpawith Phoommanee	Ulster University
O3	Label-free nanoscale chemical mapping of intracellular structures with s-SNOM	47	Christopher C Phillips	Imperial College London
O4	Smartphone-enabled surface-based ultrasound for prostate cancer screening using prostate-specific antigen density	78	Rory Douglas Bennett	Queen Mary University of London
O5	A new stochastic approach for assessment of treatment effects on osteoporotic mouse bone geometry	100	Stamatina Moraiti	University of Sheffield

Room 2

Theme 3: Biosensing & Bioinstrumentation — Chair Dr Vincent Teng co-chair L Giraa

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	A collaborative approach for the co-design of a Torso monitoring wearable for trunk training in the	51	Charlotte Vye	Hobbs rehabilitation Ltd
O2	Electrochemiluminescence (ECL) enzymatic biosensors based of poly(ethylene glycol) diacrylate (PEGDA)-cryogels/polyluminol	22	Lucia Simona Ferrararacio	Swansea University
O3	Studying the locomotion of magnetic slime robots for endoscope intervention in kids	29	Linxiaohai Ning	Queen Mary University of London
O4	Impact of physical distance on empathy, moral judgement, and behaviour of remote surgical robot operators: a comprehensive analysis	33	Aimilia Kakampoura	University of Sheffield
O5	In vivo performance of soft and fully polymeric peripheral nerve cuff electrodes	259	Estelle A Cuttaz	Imperial College London

Theme 6: Human Movement Sciences and Rehabilitation Engineering — Chair Dr Elisabeth Williams and co-chair M Darcy

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Gait event detection in cerebellar ataxia: A single vs. multiple sensor approach	7	Javad Sarvestan	Newcastle University
O2	Validation of auto-calibrated inertial motion knee tracking with kinematic constraint	34	Matthew D Hickey	University of British Columbia
O3	Are patient reported outcome measures sensitive enough: making the case for functional biomechanical assessment of navigated total hip arthroplasty patients.	40	Hollie Leonard	University of Strathclyde
O4	Assisting the interpretation of gait analysis data with machine-learning analysis	67	Hong-Po Hsieh	University of Oxford
O5	Assessing single camera markerless motion capture during upper limb activities of daily living	75	Bradley Scott	University of Aberdeen
O6	Impact of weekly gait activity data aggregation methods on associations with sleepiness and fatigue in immune and neurodegenerative disorders: Insights from the IDEA-FAST feasibility study.	26	Chloe HL Hinchliffe	Newcastle University

Theme 6: Human Movement Sciences and Rehabilitation Engineering — Chair Dr Shahzhad Din co-chair C Mitres

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Exploring the impact of levodopa on real world digital mobility outcomes in people with Parkinson's	72	Emma Packer	Newcastle University
O2	Achalasia-inspired biomechanical biomarker of ankle instability	131	Philip E Riches	University of Strathclyde
O3	Validation of an algorithm for detecting turning in people with cognitive impairment: Preliminary results of between rater agreement on turning movements	91	Leigh James Ryan	Newcastle University
O4	Growth of the child with limb loss: physiology and provision	216	Claudia Ghidini	Imperial College London
O5	Eliciting post-activation depression in upper limb posterior root reflexes using transcutaneous spinal cord stimulation	234	Miguel Luzardo	University College London
O6	Coordination of the upper limb during activities of daily living	238	Molly Hodges	University of Surrey

ECR Event: Get your research out of the Lab! (Room 9) — Steve Cross

Room 9

Theme 4: Bio-fluid Mechanics & Mass Transport — Chair Dr Ankush Aggarwal co-chair T Pritchard

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Computational modelling and experimental evaluation of the placental transfer of	25	Bram G Sengers	University of Southampton
O2	Assessment of a hepatic artery tree truncation rule using five patient-specific cases	37	Unai Lertxundi	University of Navarra
O3	Effect of flow boundary condition and side branches on right coronary artery haemodynamics	59	Pratik Kandangwa	Imperial College London
O4	Two-phase blood flow simulations in different vessel branching patterns: bifurcation, trifurcation, and tetrafurcation	33	Tanchanok Wisitponchai	University of Strathclyde
O5	Carotid bifurcation angle and its effect on arterial haemodynamics in a realistic in-vitro flow phantom	97	Joshua A Lowe	Aston University
O6	Improved measurements of in vivo outflow conductance in the mouse eye	240	Joseph van Batenburg Ghenkood	Imperial College London

Theme 7: Bio-solid Mechanics — Chair Dr Peeti Nagsbolo co-chair C Mitres

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	The mechanical characterisation of wounded skin using DIC, c-OCE and histological analysis	153	Sara Medina-Lombardero	Herriot-Watt University
O2	Quantifying risk of overdistension in mechanically ventilated lungs	208	Hari Arora	Swansea University
O3	Experimental investigations into the layer, direction and strain rate-dependent mechanical behaviours of porcine and human colorectal tissues	239	Ciara B Durcan	Herriot-Watt University
O4	Nanostructural biophysics of fibrotic mouse skin tissue	108	Laura AM Forster	Queen Mary University of London
O5	Novel stochastic finite element solver to quantify uncertainties in bone mechanics	184	Saleh Pourseresseli	University of Sheffield

Workshops (right column)

- Understanding cell structure and mechanics with image analysis (Room B)
- Innovate UK EDGE Empowering your business innovation to grow and scale (Room 5)
- BSI Standards: An introduction to Standards in Healthcare (Room B)
- VR Play and Learn (Level 3 Concourse)
- Equality, Diversity & Inclusion (Room B)
- Council Meeting (Room B)

Day 2

Upper Auditorium

Time	Session
08:00	Registration (Reception Desk Entrance Main Concourse)
08:30 - 9:45	Oral Presentation

Theme 2: Data Analysis, Machine Learning & AI — Chair Prof Vanitey Bailey co-chair A Drysdale

Time	No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
08:30 - 8:45	O1	Biomarkers for pre-eclampsia using personalised cardiovascular models	252	Dale Kernot	Swansea University
8:45 - 9:00	O2	Multiple-case physics-informed neural network	222	Hong Shen Wong	Imperial College London
9:00 - 9:15	O3	Synthetic data generation for DL-based haemodynamic analysis of coronary artery with stenosis	227	Salwa Alamir	JP Morgan Chase
9:15 - 9:30	O4	Generalisable AI segmentation of 3D vasculature: a human-in-the-loop approach	89	Natalie Holroyd	University College London
9:30 - 9:45	O5	Development of a head acceleration event classification algorithm for female rugby union	242	David Powell	Swansea University

Time	Session
9:45 - 10:00	Break
10:00 - 10:45	Plenary Presentation by Prof. Alicia El Haj: Engineering Cell and Tissues as Advanced Therapies; an interdisciplinary team science approach
10:45 - 11:30	BioMedEng Association Meeting
11:30 - 12:15	Poster Session
12:15 - 13:00	Lunch Break
13:00 - 14:30	Oral Presentation

Theme 1: Cell/Tissue Engineering — Chair Dr Ivan Sergere co-chair A Drysdale

Time	No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
13:00 - 13:15	O1	Heterogeneity in blood cell populations: Interfascicular matrix cells are	74	Simon Grossemy	Queen Mary University of London
13:15 - 13:30	O2	Assessing the effect of cell age and testing regenerative medicines in an in vitro 3D bone-on-chip	171	Elisa R Buzlyn	École Normale Supérieure Paris-Saclay
13:30 - 13:45	O3	Development and validation of an organ-chip model of breast cancer bone metastasis	105	Joanne Nolan	Queen Mary University of London
13:45 - 14:00	O4	Alendronate enhances osteoporotic vertebral bone by increasing the bone-mineral density in zebrafish model	146	Fabio Bohns	University of Liverpool
14:00 - 14:15	O5	NKG2: development and validation of a scalable in vitro model of the human gut microbiome	157	William Davis Birch	University of Leeds

Time	Session
14:15 - 14:30	Break and Poster Session
14:30 - 15:00	
15:00 - 15:45	Plenary Presentation by Prof. Rachel Errington: From Paints to Particles – an interdisciplinary approach to understanding the tumour microenvironment
15:45 - 17:00	Oral Presentation

Theme 1: Cell/Tissue Engineering — Chair Dr Thomas Iskratsch co-chair M McNamee

Time	No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
15:45 - 16:00	O1	Investigating the relationship between modes of migration and cancer cell plasticity in OSCC using a microfluidic chip	81	Sophia F Lunetto	Queen Mary University of London
16:00 - 16:15	O2	Developing and applying genetically encoded proteins as pre-resonant coherent Raman scattering tags for next-generation live-cell imaging.	88	Osan Aksakal	Cardiff University
16:15 - 16:30	O3	Explant-in-chip perfusion platform enables native tissue intravascular flow preserving tissue viability: towards its adaptation to cancer studies	117	Eva E Zeringa	Imperial College London
16:30 - 16:45	O4	Fibrillar-level response of bone cartilage unit in response to injurious loads	109	Himadri Gupta	Queen Mary University of London
16:45 - 17:00	O5	Comparison of magnetic nanoparticle activation of mechanotransduction via antibody and aptamer	245	Hadi Hajali	University of Birmingham

Time	Session
17:00 - 17:30	Closing Ceremony

VIP Lounge

Theme 5: Biomedical Imaging & Image Processing — Chair Prof Peter Lee co-chair M Darcy

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Hierarchical phase-contrast tomography for high-resolution imaging of ex vivo whole adult human heart in health and disease	140	Joseph Brunet	University College London
O2	Towards improving inter-scorer reliability of deep staging via time-frequency locating of sleep stage transitions with bi-LSTM networks	147	Christopher D McCausland	Ulster University
O3	TOMOSAXS: multimodal volumetric analysis of collagen nano-to-microstructure	148	Elis Newham	Queen Mary University of London
O4	Enabling advanced multi-modal neuroimaging analysis for neurodegenerative diseases	164	Lewis Hotchkiss	Dementias Platform UK

Theme 9: In Silico Model Development & Application — Chair Prof Xiao Yiu co-chair M Borgese

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Endoscopic strip craniectomy followed by helmet therapy: A Computational tool for biosensor development using in silico modelling and synthetic biology	82	Lara Deloge	University College London
O2	Computational modelling and topology optimisation of fixation plates for long bone fractures for enhanced bone healing	244	Emily J Powell	University of Manchester
O3	Towards lumped-parameter modelling of cardiovascular haemodynamics for optimisation of novel physiologically adaptive pacemakers	236	Hyekyung Ryu	University of Bath
O4	A validated patient specific computational model of the left atrial appendage occluder device deployment	158	Rafizul Islam Md	Queen Mary University of London
O5	Generation of fibrosis distributions for AF episodes' simulation	217	Alexander Zolotarev	Queen Mary University of London
O6	In-silico framework to study the impact of metastatic cancer in the spine.	215	Simao Laranjeira	University College London

Theme 9: In Silico Model Development & Application — Chair Prof Paul Roos co-chair T Pritchard

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Predicting protein electrostatic gating of carbon nanotube conductance for AMR	17	Dafydd Jones	Cardiff University
O2	A computational pipeline to explore the effect of feto-placental vasculature on T2* MRI	199	Diana Oliveira	University College London
O3	On the multiscale chemo-mechanical modelling of pressure-induced tonic in cerebral vessels	87	Ioannis Polydoros	Swansea University
O4	A physico-mechanical model of normal craniofacial growth in humans up to 48 months of age	57	Mehran Moazen	University College London
O5	The hydrostatic effects of prone and supine positioning: model development	111	Liam Weaver	University of Warwick

Room 2

Theme 3: Biosensing & Bioinstrumentation — Chair Prof Martin Pezirisch co-chair and L Bettles

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Using an 'Earable' as a neural interface – a mechanical feasibility analysis	52	Yunpeng Li	University of Cambridge
O2	A mathematical study on oxygen transport in the placenta for reducing risk of stillbirth	186	Anna Rafiq	University of Glasgow
O3	Development of a lab-on-chip optical biosensor for multiplexed detection of biomarkers	231	Francesco Masia	Cardiff University
O4	Effect of biomechanical factors on oscillometric blood pressure measurements	250	Muhammad Azhar	University of Aberdeen
O5	Using the ASCENT simulation environment to improve the degree of spatial selectivity in rat sciatic nerve stimulation with a fully polymeric nerve cuff	256	Zachary K Bailey	Imperial College London

Theme 6: Human Movement Sciences and Rehabilitation Engineering — Chair Dr Cleste Hinchliffe co-chair E Fricker

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Changes in real world walking across 4.5 years in older adults and people with Parkinson's	38	Cameron Kirk	Newcastle University
O2	Clinical usability of a stability-based package using visualisation: a retrospective analysis	85	Lauren Forsyth	University of Strathclyde
O3	Exploring the relationship between digital mobility outcomes and a predictive risk score for disease progression in people with Parkinson's Disease	130	Ellen Buckley	University of Sheffield
O4	Human hip joint angle prediction using 2D pose estimation	211	Muhammad Taimoor Adil	University of Manchester
O5	Defining the technical specifications for low-cost paediatric prosthetic knee joints	203	Caitlin E Edgar	Imperial College London

Theme 3: Biosensing & Bioinstrumentation — Chair Prof Kylie Green co-chair L Bettles

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Nanotechnology approaches for the investigation of cardiac mechanosensing	90	Caoimhe O'Neill	Queen Mary University of London
O2	Hand-portable HPLC with broadband spectral detection enables analysis of complex polycyclic aromatic hydrocarbon mixtures	113	Ali Salehi-Reyhani	Imperial College London
O3	Measuring intracranial pressure through the ear	149	Wahbi K El-Bouri	University of Liverpool
O4	EMG signal analysis to assess prosthetic hand failure during activities	159	Hope O Shaw	University of Southampton
O5	Developing and validating on-organ sensors for intestinal transit monitoring	176	Sara Medina-Lombardero	Herriot-Watt University

Room 9

Theme 4: Bio-fluid Mechanics & Mass Transport — Chair Dr Joseph van Batenburg-Sherwood co-chair SK Boddhing

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Hierarchical imaging to inform coronary tree vessel morphology in the human heart	118	Emer Boerba O'Leary	University College London
O2	A mathematical study on oxygen transport in the placenta for reducing risk of stillbirth	166	Zak Crowson	University of Nottingham
O3	An OpenFOAM solver for the simulation of blood flow and LDL transport in arteries	119	Jorge Antonio Molina Moya	University of Granada
O4	A parametric computational fluid dynamic (CFD) analysis of diverse left atrial appendage	154	Matthew T Lee	Imperial College London

Theme 7: Bio-solid Mechanics — Chair Dr Fu Fu Zhou co-chair S Sebae

No.	Abstract title	ID	Presenting author	Presenting Author's Affiliation
O1	Agarose as a tissue-mimic for porcine kidney at the macro-and micro-length scales	30		University of Oxford
O2	Biomechanics of the intervertebral disc-endplate soft-hard tissue junction analysed using synchrotron tomography and digital volume correlation	73	Alissa L Parmenter	Queen Mary University of London
O3	Finite element wear modelling of total knee replacements	122	Ciaran N Pitt	Liverpool John Moores University
O4	Assessment of muscle tissue changes by flexible strain sensors in correlation with finite element simulation	198	Carolina Tacchella	Herriot-Watt University
O5	Code verification of the micro finite element solver ParOSol using the method of manufactured solutions	106	Frederik M Trommer	University of Sheffield

Workshops (right column)

- Rehab Engineering in central approach to delivering patient specific solutions (Room 5)
- Revolutionising the NHS: Reserve Research Methods On ChipRT and the New Digital Assistants (Room B)
- VR Play and Learn (Level 3 Concourse)