

Insigneo Showcase 2019 Programme



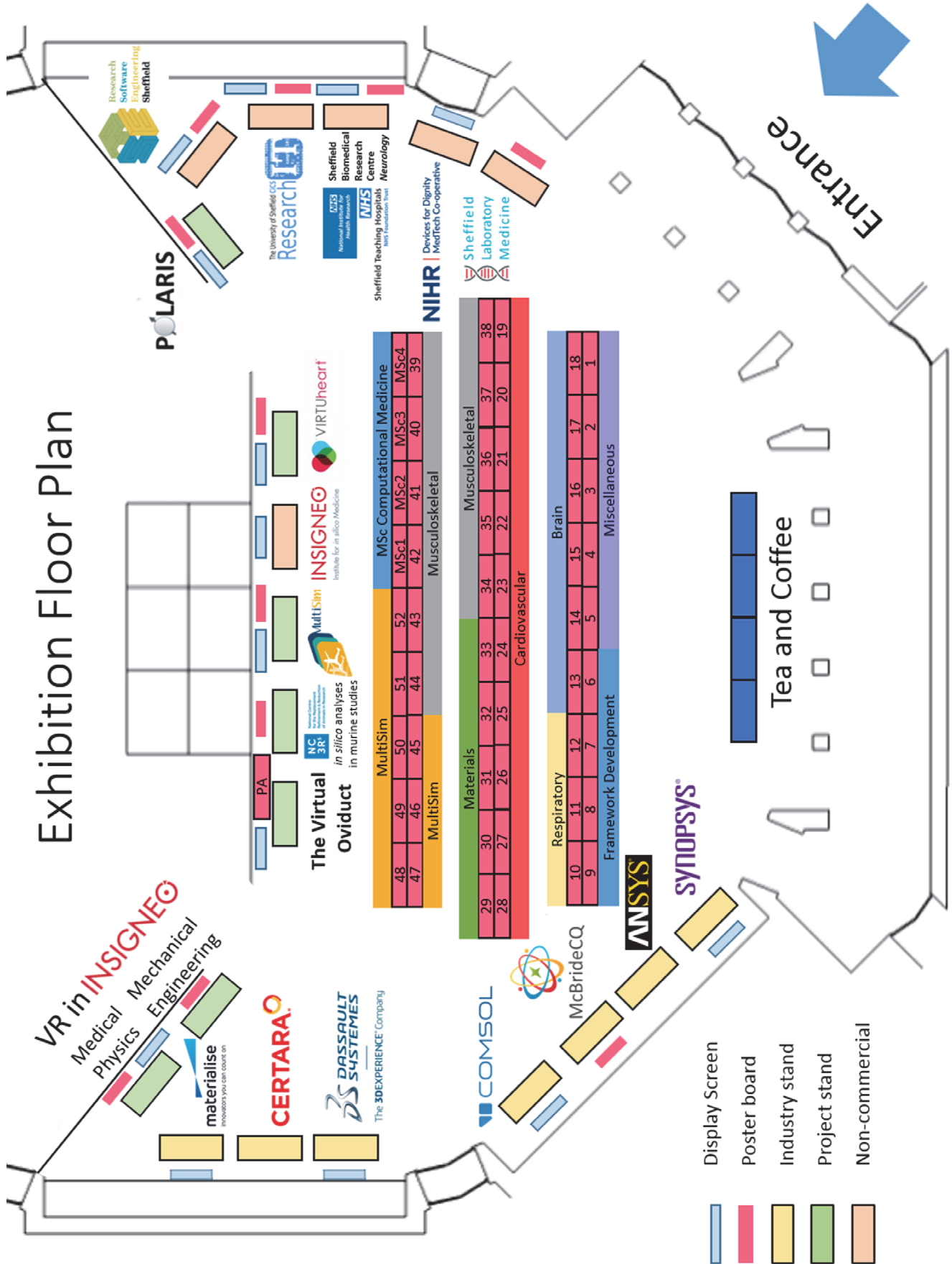
08:30	Arrival, registration and refreshments An opportunity to network, browse the poster presentations, and visit the Exhibition Area showcasing commercial <i>in silico</i> activities and interactive demonstrations
09:30	Welcome from Professor Koen Lamberts – President and Vice-Chancellor, University of Sheffield Professor Claudia Mazzà – Interim Executive Director of Insigneo, University of Sheffield
09:45	Plenary Speaker: Professor Liesbet Geris, President of the Virtual Physiological Human Institute and Professor in Biomechanics and Computational Tissue Engineering, University of Liège 'From data to knowledge using <i>in silico</i> technologies: examples from regenerative medicine'
10:45	Coffee break - enjoy a break, network, visit the Exhibition Area and browse poster presentations
11:15	Insigneo Early Career Session Introduced by: Dr Rebecca Gosling, Interim Director of Clinical Translation, Insigneo Institute, University of Sheffield
11:15	Key Note Speaker: <u>Dr Pankaj Garg</u> , NIHR Clinical Lecturer in Cardiology, University of Sheffield 'Role of cardiovascular Magnetic Resonance Imaging in precision diagnostic technology'
11:30	Invited power pitches from Early Career Researchers Jose Ricardo <u>Aguilar Cosme</u> , Elisabeth <u>Kugler</u> , Jessica <u>Magallanes</u> , Erica <u>Montefiori</u> , Sara <u>Oliviero</u> , Bryant <u>Roberts</u> , Bilal <u>Tahir</u> , Rodrigo <u>Siqueira de Souza</u> , Samuel <u>Stroud</u> , Jonathan <u>Taylor</u>
12:30	Lunch - enjoy a break and network
13:00	Exhibition – visit the Exhibition Area and browse poster presentations
14:00	David Hughes – Medical Director, Sheffield Teaching Hospitals NHS Foundation Trust 'Introduction and overview from Sheffield Teaching Hospitals'
14.05	The role of medical imaging in <i>in silico</i> medicine Introduced by: Professor Jim Wild, Director of Research, Insigneo Institute, University of Sheffield <u>Dr Xinshan (Shannon) Li</u> , Department of Mechanical Engineering 'Building virtual organs: From <i>in silico</i> Medicine to Forensics' <u>Dr Andrew Swift</u> , Department of Infection, Immunity and Cardiovascular Disease 'Clinical applications of machine learning in cardiac imaging' <u>Dr Rhoda Hawkins</u> , Department of Physics & Astronomy 'Deforming cancer cell nuclei: images and modelling'
15:00	Mathematical approaches in <i>in silico</i> medicine Introduced by: Dr Maria-Cruz Villa-Uriol, Lecturer in Computer Science, University of Sheffield <u>Dr Haiping Lu</u> , Department of Computer Science 'Interpretable Machine Learning' <u>Dr Miguel Juarez</u> , Department of Maths & Statistics ' <i>In silico</i> augmented clinical trials: the StriTuVaD project' <u>Dr Paul Watton</u> , Department of Computer Science 'Modelling the mechanobiology of intracranial aneurysm stability/enlargement: a patient-specific framework'
15:50	Closing remarks and poster prize giving Dr Andrew Narracott, Director of Operations, Insigneo Institute, University of Sheffield
16:10 – 17:00	Drinks reception

Poster Exhibition

(See Exhibition Floor Plan for locations, please note that poster PA is located at a project stand)

Cat	No.	First Name	Surname	Title of abstract
Miscellaneous	1	Maria Luisa	Davila Garcia	Papilloedema and diabetic retinopathy detection with medical imaging technologies
	PA	Carlos	Morales	An Agent-Based Model of cell-level interactions during the mammalian fertilization process using FlameGPU
	2	Hamna	Afaq	<i>In-silico</i> modelling of oesophageal tissue for treatment of long gap oesophageal atresia
	3	Taban	Kakaawla	Novel and versatile münchnones cycloadditions for the synthesis of functionalised pyrroles
	4	Rodrigo	Siqueira de Souza	FootSim: modelling of tactile responses from the sole of the foot
Framework Development	5	Jonathan	Taylor	Towards automated segmentation of polycystic kidney MR images
	6	Ivan	Benemerito	pFIRE: a new solution for elastic image registration
	7	Eran	Elhaik	Multiway Matcher: a novel R package for personalised medicine applicable to all clinical trials and epidemiological studies
	8	Jessica	Magallanes	TimeSequence: extracting and visualising sequential and time patterns in event sequences through levels of summarisation
Respiratory	9	Kenneth	Wertheim	Computer simulation of cell interactions in neuroblastoma
	10	Ho-Fung	Chan	Finite element simulations of hyperpolarised gas diffusion MRI in micro CT models of the lung
	11	Paul	Hughes	Ventilation-perfusion imaging using co-registered hyperpolarized gas and contrast enhanced 1H perfusion MRI
Brain	12	Laura	Saunders	A method for free breathing lung T1 mapping using image registration and application to patients with idiopathic pulmonary fibrosis
	13	Ahmed	Mustafa	Understanding the effects and variation of haemodynamics during balloon aspiration catheter treatment of ischaemic stroke
	14	Adriana	Anton	Reliability and reproducibility of 1H-MR Spectroscopy for measurement of cerebral glutathione
	15	Manmohi	Dake	Type II Diabetes and Dementia: A story of the brain and its toxic 'sweet heart'
	16	Elisabeth	Kugler	Segmentation and intra-/inter-sample symmetry of the zebrafish cranial vasculature
	17	Arshnous	Marandi	Potential neuroprotective treatment for acute ischaemic stroke
Cardiovascular	18	Claudio	Puddu	A 6 channel array for 129Xe MRI in dissolved phase: evaluation of best design trough electromagnetic simulation
	19	Alan	Bernjak	Can computational modelling explain the dead in bed syndrome?
	20	Niamh	Errington	Identifying microRNAs as biomarkers in pulmonary arterial hypertension
	21	Rebecca	Gosling	Virtual (computed) FFR and virtual coronary intervention (vCI) versus angiography for guiding PCI: a virtual study
	22	Sokratis	Kariotis	Machine learning of whole-blood gene expression to uncover IPAH heterogeneity
	23	Katie	Lal	Computational modelling of fractional flow reserve from coronary angiography: expert training required
	24	Sathyavani	Malyala	Modelling cardiac electrophysiology in human ventricular tissue
	25	Michai	Mamalakis	An automatic segmentation pipeline for LGE-MRI of the left ventricle with scars
	26	Roberto	Newcombe	An atlas of computed FFR in common patterns of coronary artery disease
	27	Samuel	Stroud	Applicability of virtual (computed) fractional flow reserve and virtual coronary intervention
	28	Rasmus	Wagner	Investigation of tribological interaction between human endothelial cells and cardiovascular medical devices
Materials	29	Jose Ricardo	Aguilar Cosme	Carbon dot – protoporphyrin IX conjugates for improved drug delivery and bioimaging
	30	Hafsah	Akhtar	Tunable nanobioceramics for bioactive scaffolds for restoration of craniofacial
	31	Tugba	Cebe	Quantification of collagen fiber structure in osteogenesis imperfecta using second harmonic generation imaging on polycaprolactone scaffold
	32	Nicholas	Farr	Secondary electron hyper spectral surface imaging for beam sensitive biomaterial characterisation
	33	Witchayut	Sasimonthon	Craniofacial bone defect repair using polymer scaffolds and cell derived matrix
Musculoskeletal	34	Maarten	Afschrift	Common sensorimotor transformations for balance control during standing and walking
	35	Lorenza	Angelini	Assessment of gait alterations and balance in patients with Multiple Sclerosis
	36	Eloise	Briggs	Investigation into the Effect of Road Camber on Equine Locomotion- The Ramifications of Roadwork
	37	Shaktidhar	Dandapani	Soft Tissue Growth & Remodelling Framework in Commercial Finite Element Analysis Software
	38	Adrian	Elias	Estimation of glenohumeral joint contact forces using a subject specific model
	39	Claude	Hayford	Evaluation of a Scaled Generic Musculoskeletal Model for Estimating Joint Reactions during Normal Gait in Children
	40	Hans	Kainz	Modeling bone growth in children with cerebral palsy
	41	Qiao	Li	Towards a virtual population for evaluating hip fracture risk
	42	Ulises	Serratos	Upper limb manipulability-comfortability assessment for simulation validation
	43	Dharshini	Sreenivasan	A detailed spatial analysis shows regional effects of acarbose on bone properties in female mice
	44	Zena	Wally	<i>In vitro</i> 3D bone model for testing 3D printed porous dental implant
MultiSim	45	Thomas	Milton	Subject-specific or generic: when is personalisation worth the effort?
	46	Erica	Montefiori	Muscle variability effect on joint contact forces prediction in post-menopausal women
	47	Freddie	Greatrex	3D ultrasound methods for image-based personalisation of musculoskeletal models
	48	Michael	Woodward	Dual-modality patient-specific musculoskeletal models for the multiscale analysis of femur loading
	49	Vee	Cheong	A novel algorithm to predict bone changes due to physiological loading for the mouse tibia
	50	Sara	Oliviero	Validation of finite element models of the mouse tibia for the prediction of structural mechanical properties
	51	Bryant	Roberts	Longitudinal effects of combined treatment with PTH(1-34) and mechanical loading on bone properties in ovariectomized mice
	52	Sahad	Zanjani-pour	A realistic finite element model of the mouse knee joint
MSc Comp Medicine	MSc1	Abhinav	Kongari	Computing coronary artery flow from angiogram images in vessels with serial stenoses
	MSc2	Leticia	Campello	Micro-CT based Finite Element Models of the human vertebrae to assess the effects of induced metastatic lesions
	MSc3	Malwina	Matella	Computing the virtual fractional flow reserve based on branched coronary arteries models
	MSc4	Michael	Walker	Non-contrast CT-based models of lung ventilation

Exhibition Floor Plan



Industry Talks at Exhibition Stands

Time	Summary
11:00	<p>Synopsys</p> <p>Medical Device Development with Simpleware Software Learn how Simpleware software provides 3D image processing solutions for the design and optimization of medical devices.</p>
11:20	<p>ANSYS and the Avicenna Alliance</p> <p>Making <i>in silico</i> trials and personalized medicine a reality today, with your help! Computer models for healthcare are likely the solution to make healthcare safer, faster, more affordable and profitable are saying US and EU policy makers and regulators. ANSYS is working closely with the Avicenna Alliance to deploy its multiphysics platform, properly verify and validate the models following the rules of the regulators and educate all the actors about the fabulous potential brought by <i>in silico</i> personalized medicine.</p>
13:30	<p>Dassault Systèmes</p> <p>Simulation in the Life Sciences – a look ahead Life Sciences for Dassault Systèmes covers 3 segments – medical devices, Pharma/biotech, and patient care - that have hitherto been quite distinct, at least in terms of computational tools and technologies. However, all segments are ultimately concerned with patient health and satisfaction, and this presentation will demonstrate how Virtual Human Modelling R&D at Dassault Systèmes is developing solutions for all 3 segments and in the process deepening, diversifying, and democratizing the use of simulation in healthcare.</p>
13:40	<p>COMSOL</p> <p>COMSOL Multiphysics®: Providing software for accurate FEA modelling The COMSOL Multiphysics® software is used for simulating designs, devices, and processes in all fields of engineering, manufacturing, and scientific research. A particular strength is its ability to account for coupled or multiphysics phenomena, for example, coupling fluid and structural effects in a single simulation. COMSOL®'s ability to easily incorporate user-defined equations allows for flexible customisation of your models.</p>
13:50	<p>Materialise</p> <p>Image based Computational Modelling for Clinical Care This short session will demonstrate an overview of a wide variety of applications in the medical field using Materialise's image based technology.</p>

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