

Image-Based Simulation for Industry 2022 (IBSim-4i 2022)

Monday 17 October 2022

Training

9:30am	Registration and Refreshments
10am	gVXR Session 1: Introduction to X-ray Attenuation and its Implementation in gVXR
11am	gVXR Session 2: First X-ray Radiograph Simulations - Monochromatic spectrum - Multi-material samples
12:30pm	Lunch
1:30pm	gVXR Session 3: More Advanced Simulations - Polychromatic spectrum - Photonic noise - Source shape (e.g. parallel vs cone beam) - Focal spot
2:45pm	Afternoon Break
3:15pm	gVXR Session 4: Simulation of Tomography Acquisition
5pm	Day concludes

Tuesday 18 October 2022

Training

9am	CIL Session 1: Introduction to XCT and the CIL Framework for Reconstruction of Commercial Lab-based XCT Data with FBP/FDK
10:30am	Morning Break
11am	CIL Session 2: Pre-processing of XCT Data, e.g. Centre of Rotation Correction
12:30pm	Lunch
1:30pm	CIL Session 3: Iterative reconstruction methods for standard XCT data
2:45pm	Afternoon Break
3:15pm	CIL Session 4: Activity of Choice Choose one of the following sessions: 1. Reconstruction of data simulated from gVXR 2. Advanced iterative reconstruction with spectral XCT data 3. Advanced iterative reconstruction on laminography XCT data
5pm	Day concludes

Wednesday 19 October 2022

Forum

9:30am	Registration and Refreshments
10am	Welcome
10:15am	Speaker: Keynote 1 Monte Carlo simulations for X-ray imaging: applications in metal fatigue crack characterization Jean Michel Letang
	Session 1: Presentations
11am	Image-based simulation techniques for AM-built rocket engine components Byron Blakey-milner
11:25am	Data-driven material decomposition in industrial CT Moritz Weiß
11:50am	Multiple DOF for X-ray CT Hydrocarbon Exploration Mario Sandoval
12:15pm	Lunch
	Session 2: Presentations
1:15pm	3D Reconstruction of Residual Stresses in Bodies Manufactured by Laser Powder Bed Fusion Using the Strain Tomography Technique Fatih Uzun
1:40pm	Microstructure reconstruction of porous media via sequence prediction for computational material design Xiangyun Ge
2:05pm	SuRVoS2 – An open-source application to accelerate annotation and segmentation of 3D image data using supervoxels and machine learning Dr Oliver King
2:30pm	Beyond Periodic Representation of Microstructural Geometry Dr. Martin Doškář
2:55pm	Afternoon Break
	Session 3: Presentations
3:25pm	Generation of images for surface extraction and surface roughness characterisation using virtual X-ray CT scanning and Machine Learning Amin Garbout
3:50pm	Data-driven techniques for creating digital twins in additive manufacturing Dr Oliver Barrowclough
4:15pm	Novel x-ray ct flyscan trajectories and their potential for industrial applications Charlotte Hagen
4:40pm	Recent development for voxel-based lattice Boltzmann and finite element solver on multi-core CPU/GPUs Liang Yang
5:05pm	Group Photo
5:30pm	Networking Reception and Buffet Dinner
9pm	Evening Concludes

Thursday 20 October 2022

Forum

9am	Refreshments
9:30am	Speaker: Keynote 2 CT image-based modelling of composite materials' failure Philip Withers
	Session 4a: Presentations
10:15am	Micro-Scale Results from the Benchmark Exercise on the Image-Based Permeability Prediction of Composite Reinforcements Dr Elena Syerko
10:40am	Morning Break
	Session 4b: Presentations
11:10am	WebCT: Fully Featured Browser-Based Interactive X-Ray Simulations for Scan Planning and Training Iwan Mitchell
11:35am	Identification of the parameters of an image-based model using integrated digital volume correlation Léonard Turpin
12pm	Phase segmentation of uncured composite prepregs via deep learning Mr. Pedro Galvez-hernandez
12:25pm	Lunch
	Session 5: Presentations
1:25pm	X-ray Tomographic Reconstruction using Adaptive Mesh Representations Thomas Blumensath
1:50pm	AMITEX_FFTP - A massively parallel FFT code for Image-Based mechanical simulation of heterogeneous materials Lionel Gélébart
2:15pm	A deep learning stochastic reconstruction method with Hilbert curves Shan Zhong
2:40pm	Afternoon Break
	Session 6: Presentations
3:10pm	Imaged Based Simulation of Weld Toes and Corrosion Pits in Plasma Welded Nickel Aluminium Bronze (NAB) Ms Tamsin Dobson
3:35pm	Statistical Analysis of Effective Diffusivity Estimations in Porous Media James Le Houx
4pm	When simple models fail: CT-FEA simulations of metal foams Artem Lunev
4:25pm	Wrap-up
4:40pm	Forum Concludes