Exponent®
Engineering & Scientific Consulting

Farah Ahmed, Ph.D.

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Professional Profile

Dr. Ahmed has extensive experience in fracture mechanics, multi-scale failure, and material selection, with a focus on biomaterials, implant design, and interfaces within joint implants. With over 19 years' experience in non-destructive and destructive analysis, Dr. Ahmed supports her clients in material selection and analysis, risk assessments, crisis management, product design and prototyping, manufacturing processes,recalls and failure analysis. Dr. Ahmed holds expertise in the application of microscopy (CT, SEM, Optical) and mechanical testing applied across a wide range of industries, including additive manufacturing, pharmaceuticals, medical devices, consumer products, electronics, automotive, medical forensics, aerospace, food and beverage, national space agencies, batteries and mining.

Prior to joining Exponent, Dr. Ahmed was the Head of Imaging at the Natural History Museum, London. During her time, she provided technical consulting and research contract services to her clients Dr. Ahmed has conducted in-situ experimental design, data validation and microstructural development studies, thereby helping companies bring products to market quicker.

In addition to her applied materials and imaging experience, Dr. Ahmed's doctoral thesis focuses on multi-scale high resolution failure of pathological bone in relation to load. During her academic career, Dr. Ahmed established novel methodologies to image and analyze failure in a range of materials, including in-situ rigs for 4D understanding of failure in composite structures. Dr. Ahmed is the founder and chair of the international conference ToScA (Tomography for Scientific Advancement) and she holds numerous positions on national committees, including, the Engineering and Physical Research Council (EPSRC) and the National Physical Laboratory (NPL).

Academic Credentials & Professional Honors

Ph.D., Biomedical Engineering & Materials Science, Queen Mary University London, UK, 2011

B.Sc., Biomedical Engineering & Materials Science, Queen Mary University London, UK, 2003

Licenses and Certifications

Postgraduate Certificate in Academic Practice (PGCAP)

Prior Experience

Head of Imaging, The Natural History Museum 2016-2018

CT Facility Manager, The Natural History Museum 2012-2016

Director, 3DSTech Ltd 2010-2012

Research Associate, School of Medicine and Dentistry, QMUL 2009-2010

Teaching Associate, School of Engineering and Materials Science, QMUL 2003-2007

Professional Affiliations

Tomography for Scientific Advancement International, Founder and Chair

Engineering and Physical Research Council, UK Tomography roadmap, Committee Member

National Physical Laboratory, DXCT, Committee Member

The Royal Microscopical Society, Member

Scanning Electron Microscopy Technologies, Committee member 2015-2017

Languages

Urdu

Hindi

Punjabi

Publications

Reznikov N, Phillips C, Cooke M, Garbout A, Ahmed F, Stevens MM. Functional adaptation of the calcaneus in historical foot binding. J Bone Miner Res 2017; 32: 1915-1925.

Mortimer J, Anand M, Sasha Verchovsky S, Nicoara S, Greenwood RC, Gibson J, Franchi IA, Ahmed F, Strekopytov S, Carpenter J. () Preparing and Characterising Carbonaceous Chondrite Standards for Verification of ESA's 'Prospect' Package. Lunar and Planetary Science XLVIII, 2017.

Sukjamsri C, Geraldes DM, Gregory T, Ahmed F, Hollis D, Schenk S, Hansen U. Digital volume correlation and micro-CT: An in-vitro technique for measuring full-field interface micromotion around polyethylene implants. Journal of Biomechanics 2015; 48(12):3447-3454.

Acquaah F, Robson Brown KA, Ahmed F, Jeffery N, Abel RL. Early trabecular development in human vertebrae: overproduction, constructive regression, and refinement. Frontiers in Endocrinology 2015; 6.

Almeida NV, Smith CL, Sykes D, Downes H, Ahmed F, Russell SS. Finding "Pebbles" In barwell with X-ray Micro-computed tomography (mu CT). Meteoritics and Planetary Science 2014; 49: A15-A15.

Almeida NV, Smith CL, Sykes D, Downes H, Ahmed F, Russell SS. Locating porosity in chondrites with X-ray micro-computed tomography (mu CT). Meteoritics and Planetary Science 2014; 49: A16-A16.

Smith C., Ahmed F, Sykes D, Schroeven-Deceuninck H. X-ray Microtomography of Martian Meteorites and Implications for Mars Sample Return Geophysical Research Abstracts Vol. 15, EGU2013-10482, 2013.

Smith CL, Ahmed F. X-ray microtomography of the Tissint martian meteorite. Meteoritics and Planetary Science 47: A352-A352, 2012.

Davis GR, Safir F, Boyde A. X-ray microtomography and scanning electron microscopy in study of loss of articular calcified cartilage and subchondral bone in human femoral head. International Journal of Experimental Pathology 2009; 90(1), A72.

Advisory Appointments

Committee Member NXCT

Editorships & Editorial Review Boards

Journal of Microscopy, Guest Editor 2018

Peer Reviews

Journal of Biomaterials and Biomechanics

Journal of Materials Science

Journal of Microscopy