

SUMMARY

Clinician–technologist working at the intersection of surgery, imaging, AI, ClinTech architecture and data governance. Founder of an still-under-wraps AI project and co-founder of Granite XS, with expertise in 3D surgical planning, segmentation workflows, applied anatomy, biomechanics, and GDPR-compliant system design. Advises MedTech and AI companies on product strategy, imaging pipelines, validation frameworks, and clinical translation on a background of extensive deep clinical experience.

CORE COMPETENCIES

| AI & Imaging   | Data Architecture  | Clinical Expertise  | MedTech Strategy   | Education   |
|--|--|---|--|---|
| DICOM→3D pipelines<br>Segmentation logic<br>Landmark frameworks<br>Deformity metrics | GDPR Compliance<br>Data governance<br>Secure-by-design<br>ISO27001 logic | Limb deformity<br>Paeds orthopaedics<br>Biomechanics<br>Surgical Simulation | Product dev<br>Regulatory-aware<br>research envts<br>Innovation advisory | Applied anatomy<br>Biomechanics Ed<br>Interview training<br>FRCS mentorship |

CONSULTING & ADVISORY

DETAILED EXPERIENCE & CREDENTIALS

| Implant companies   | UK-registered NGOs   | National trials  |
|---|--|--|
| Implant design<br>Market landscape analysis<br>New product trials<br>Surgical education<br><i>Orthofix, NuVasive, S &amp; N</i> | Business case analysis<br>Conflict-zone equipment delivery<br>International donor relations;<br>Conflict zone Healthcare delivery<br><i>Multiple</i> | Research strategy<br>Trial design<br>Trial Monitoring<br>Research governance<br><i>NETSCC, Hull University etc</i> |

Invited speaker: International and National- Selected Experience

|   |  |
|---|--|
| Data in surgery                                     | SICOT (Kuala Lumpur); EPOS (Oslo) BSCOS; BLRS (UK) |
| AI in healthcare                                    | DisruptHR (Dubai)                                  |
| Predictive models in surgical decision-making -MCMC | EFORT (Europe- Virtual)                            |
| Orthopaedics & Engineering                          | ISTRUCTE; IMECHE (UK)                              |

| Author and Awards  | Selected Committees  | Training   |
|--|--|--|
| Book chapters FRCS (Tr&Orth)<br>STAE Funding Award DN Fdn 2016 | Robotic Focus Group- GOS<br>NWT CCG STP Tr & Paeds- UK (16-17) | Caldicott Guardian Cert– 2020<br>Written Evidence – Bond Solon- 2016 |

“Consulting & Leadership Experience” “Committees & Panels” “Legal / Governance Training” “Selected Invited Talks”

TECHNICAL CAPABILITIES

|   |   |
|---|---|
| CT/MRI <b>segmentation</b> (classical + AI-assisted)    | Alignment <b>analysis</b> , MAD, osteotomy simulation |
| <b>Surface mesh processing + computational geometry</b> |   |
| AI <b>validation</b> , reproducibility, bias mitigation | Secure <b>data exchange</b> architecture & governance |

AI & MEDTECH DEVELOPMENT

PROJECTS & HISTORICAL WORK

| Founder   Lead Architect   Dev — XXXX.XX     | Co-Founder & Governance Architect — Granite XS |
|--|--|
| Clinical translation and product development | Medical data strategy                          |
| Medical imaging pipelines                    | System architecture                            |
| AI-ready system architecture                 | Security-by-design principles                  |
| 3D simulation and planning                   | Data governance logic                          |
| Data annotation and AI training              | Risk modelling and mitigation strategies       |

**Limb Reconstruction Patient Companion App (Concept)**  
Architected full-flow app | direct feedback to surgical teams | monitor progress and pt reminder tool  
Current market landscape = still a viable project with the right partner

**Limb Reconstruction Database Development (Concept)**  
Architected for supra-local research and outcome tracking | RCH, Melbourne local research tool  
Most efficient design now is to graft a registry onto Granite XS secure, supra-local architecture.

**Blockchain-Based Insurance and Payments Architecture (Concept)**  
Designed (2018) blockchain-based instant approvals and payment architecture for insurance-driven healthcare  
Remains a potentially disruptive concept with suitable technical and commercial partners.

| Data In Healthcare (Selected Projects)    | Implementation of Tech in Health (Selected)  |
|---|--|
| EOS utilisation and optimisation GOS 2020 | EPIC Super user Implementation GOS 2019      |
| Coding Accuracy C&W London 2017           | EPIC user implementation GOS 2019            |
| Coding Accuracy Costs RCH Melbourne, 2013 | First E-learning module Uni of London (2001) |

APPLIED ANATOMY & BIOMECHANICS LAB

SKILLS & AWARDS

| Lecturer / Examiner           | Specialist teaching           | Mentorship                     |
|-------------------------------|-------------------------------|--------------------------------|
| Imperial College London       | Applied anatomy               | FRCS Prep                      |
| University of Sydney          | Biomechanics                  | Surgical interview coaching    |
| St George’s University London | Orthopaedic engineering (MSc) | Orthopaedic clinical reasoning |

Awards and Teaching Development

|   |  |
|---|--|
| Trainer of the Year (2nd place): Percivall Pott Rotation (2019) | Training the Trainers Levels 1- 3 (2014)     |
| Teaching Excellence: University of Sydney, Australia (2013)     | Teaching the Teachers, UNICON, Oxford (2009) |

SELECTED EXPERIENCE HISTORY

| International Lecturer and Examiner |                                  | International Course Faculty        |                                     |
|-------------------------------------|----------------------------------|-------------------------------------|-------------------------------------|
| ACRP Panel Member                   | London Deanery (2016)            | Paed Ortho Course, Al Nahrain Univ. | Baghdad (2024)                      |
| MSc Lecturer Orthopaedics           | Imperial College (2016)          | Radiology in Recon                  | 3rd UAE Deformity Course (2023)     |
| MBBS Finals Examiner                | Imperial College (2012–2016)     | Orthofix Academy                    | Orthofix, Italy (2017–2022)         |
| FRCS Core Teaching Tutor            | Imperial College (2012–2016)     | FRCS (Tr & Orth) Course.            | ORUK (2016–2019)                    |
| MBBS Orthopaedic Tutor              | Imperial College (2012–2016)     | Basic Femur Nailing                 | Imperial College (2016, 2017, 2019) |
| MBBS Orthopaedic Lecturer           | University of Sydney (2013)      | Basic External Fixation             | Imperial College (2016, 2018)       |
| MBBS Tutor, NDORMS                  | Oxford University (2008–2009)    | FRCS Viva Course                    | Chertsey (2016–2018)                |
| MBBS Tutor, SGHMS                   | University of London (2002–2006) | FRCS (Tr & Orth) Course             | Imperial College (2014–2016)        |
|                                     |                                  | Ilizarov Skills for Nurse           | Melbourne, Australia (2013)         |
|                                     |                                  | Simulation Training Programme       | OSS Oxford (2011–2012)              |

ARTICLES

PUBLICATIONS & BOOK CHAPTERS

Peer-Reviewed Publications

Wharton R, Trowbridge S, Simpson A, Sarraf K, Jabbar Y. *Anatomic, diagnostic and management challenges in paediatric pelvic injuries: a review*. JPOB 28(5):476–486, Sep 2019.

Burns S, Majed A, Jabbar Y, Emery R, Reilly P. *Assessing surgical decision-making – the application of Markov Chain Monte Carlo analysis to Codman-Hertel proximal humeral fractures using 3D models*. Submitted to *Shoulder and Elbow*.

Pananwala H, Jabbar Y, Mills L, Dao Q. *Tibial tunnel defect size as a risk factor in growth arrest following paediatric transphyseal ACL reconstruction*. ANZ J Surg. 2016 Sep;86(9):691–5.

Jabbar Y, Khaleel A. *Controlling shear using the Ilizarov frame*. Clinical Biomechanics 30 (2015), 995–1001.

Jabbar Y, Majed A, Hsu A, Fairhurst P, Reilly P, Emery RJH. *Decision making in proximal humeral fractures using the Markov Chain Monte Carlo modelling algorithm*. Shoulder & Elbow 5(2), 2013, 78–83.

Jabbar Y, Jeyaseelan L, Khaleel A. *Staged complete dynamisation of the Ilizarov fixator – the Chertsey experience*. Eur J Orthop Surg Traumatol 21(7), 2011, 521–526.

Jabbar Y, Ruiz A. *Patellar reconstruction using posterior femoral condyle: a 5-year follow-up*. Ann R Coll Surg Engl. 2009;91(2):W7–8.

Book Chapters

**Paediatrics for the FRCS (Tr&Orth) Examination.** Daly K, Eastwood D, Gelfer Y (eds). Oxford University Press, 2018.

Chapters: Fractures in children (physis); Multiple trauma management; Open fractures in children; Perthes disease; Flexible flat foot; Cavus foot; Genu valgum (physiological & acquired).

RESEARCH

INTERESTS

AI-assisted deformity analysis | Digital twins & predictive modelling | Clinical data architecture

RESEARCH- PROJECTS, PRESENTATIONS & AWARDS

| Prizes & Awards (Research)                   | Interdisciplinary Presentations                |
|--|--|
| Best Research Presentation (3rd), RSM (2019) | Orthopaedics and Engineering – IStructE (2008) |
| Best Research Proposal (MCMC), ICH (2012)    | Orthopaedics and Engineering – IMechE (2008)   |

NOVEL & DATA DRIVEN PROJECTS

|   |   |
|---|---|
| <b>Vascular anomaly</b><br>Single-stage radiology-guided resection<br>Intra-articular radiofrequency ablation | <b>Paeds Orth</b><br>EOS imaging in paediatric patients<br>Risk of growth arrest in paediatric ACL reconstruction |
| <b>Decision Making</b><br>Markov Chain Monte Carlo modelling in humeral fractures                             | <b>Applied Mechanics</b><br>Ilizarov construct mechanics in shear fractures                                       |

TRAINING

Good Clinical Practice in Research | Informed Consent in Paediatric Research | NIHR UK (2014)

## CLINICAL BACKGROUND

### **Consultant Orthopaedic Surgeon** 2014 – 2024

Consultant orthopaedic surgeon specialising in limb deformity, reconstruction and paediatric orthopaedics across the UK and UAE. Extensive experience in complex correction planning, growth modulation, circular-frame biomechanics and clinical outcomes research.

## CONTACT

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**Keywords:** Data architecture; secure-by-design; surgeon-in-the-loop AI; DICOM→3D→analysis pipelines; segmentation and landmarking architecture; AI validation and clinical safety; product strategy for surgical planning tools; orthopaedic research / clinical advisory; imaging workflow optimisation; data security in technology; data governance in AI models; GDPR and DPA 2018 in clinical and technology development; GCC healthcare innovation strategy; GCC healthcare market landscape analysis; surgeon engagement with technology; deep-tech/system thinking; MedTech in the real world; 3D analysis; surgical simulation; AI landmarking; biomechanical modelling; mechanical alignment; deformity analysis; medical education; FRCS; clinical reasoning; Markov Chain Monte Carlo; Decision Making; Surgical Decisions; Trauma; Paediatric Trauma; Paediatric Pelvic Injury; Proximal Humerus; Paediatric ACL; Shear; Ilizarov; Ilizarov Frame; Frame Mechanics; Orthopaedic Engineering; Ilizarov Fixator Dynamisation; Novel reconstruction methods; Physis Fractures; Open Fracture; Perthes; Genu Valgum FRCS; 3D imaging segmentation logic; Medical landmarking; Deformity analysis; Robotics and AR / VR output; AI model training; Clinical workflow → technical architecture translation; AI ethics; Enhancing surgical safety; Regulatory awareness and sensitivity; GDPR-compliant communication; ISO 27001 infrastructure; NHS DSP Toolkit & CyberEssentials compliance; Audit trails and traceability; Compliance logic and documentation; Cross-platform data ingestion and interoperability