Evaluating fracture healing using digital x-ray image analysis

Fracture healing is not easily monitored using currently available techniques.

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Sarah Whiley holds a bachelor's degree in Electrical Engineering from the University of Cape Town. After completing her MSc in Biomedical Engineering at the same institution, studying anterior-cruciate ligament repair, she spent three years completing a doctorate in the Department of Orthopaedic Engineering at the University of Edinburgh, developing techniques for assessing fracture healing using digital X-ray image analysis. She currently works in Johannesburg as a development engineer for a company that designs and produces low-dose full-body X-ray scanners. Her research interests are in orthopaedic engineering and implants, X-ray techniques and digital image analysis.

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Facial image analysis to detect gestational alcohol exposure

Large-scale screening and surveillance would identify communities most at risk of fetal alcohol syndrome in South Africa.

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Advanced magnetic resonance imaging of the brain

MRI is now the method of choice for neuro- and spinal imaging.

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Ernesta Meintjes has been involved in various studies involving neuroimaging of children with fetal alcohol spectrum disorder. Through collaboration with Massachusetts General Hospital, she and her team have developed navigated MR sequences that implement real-time motion correction and, for spectroscopy, shim correction. These methods are currently being employed to study the effects of different ARV treatment arms on brain development in children with HIV. They have also developed a control system to update the slice position in real time during free breathing cardiac MRI.

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Cardiac magnetic resonance imaging

Cardiovascular magnetic resonance imaging is becoming a routine diagnostic technique.

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New developments in medical imaging to detect breast cancer

Breast cancer is still one of the most common cancers in women.

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Kit Vaughan's experience over the past three decades includes a post-doctoral fellowship in orthopaedic engineering at Oxford University, a tenured professorship at the University of Virginia, and 14 years as the Hyman Goldberg Chair in Biomedical Engineering at the University of Cape Town (UCT). During this latter period he helped to pioneer the medical device industry in South Africa, contributing to Disa Vascular, Acorn Technologies, Lodox Systems, and the Leatt Corporation. Kit is a Fellow of the International Academy for Medical and Biological Engineering, and his qualifications include a BSc (Hons) in applied mathematics and physics (Rhodes), a PhD in musculoskeletal biomechanics (Iowa) and a DSc (Med) in biomedical engineering (UCT).

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Shedding light on the brain with near-infrared spectroscopy

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Computer-aided diagnosis in chest radiography

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