

Joint doctoral research position in Medical Engineering

Project Title: **Quantitative spectroscopic characterization of cartilage and meniscal defects**

The advertised research position is for a joint PhD degree in Medical Engineering involving laboratory and clinical studies in both Australia (Queensland University of Technology) and Finland (University of Eastern Finland), with possibility for double PhD degree awarded from both institutions. The research project involves application of near infrared (NIR) spectroscopy for non-destructive characterization and evaluation of joint connective tissues, including articular cartilage and meniscus.

The outcome of the project will enable quantitative surgical evaluation of joint tissues and augment traditional arthroscopy, which is known to possess poor diagnostic accuracy. This will potentially improve the diagnostic accuracy and success of surgical treatment of debilitating joint conditions, like osteoarthritis, which affects more than 630 million people worldwide. The research will include both *in vitro* laboratory experiments and active collaboration with surgeons in clinical studies on animal, cadaver and human subjects.

The ideal candidate will meet the following requirements and skills:

- Background in Engineering or Physics
- Enthusiastic, with interest in pursuing research career in medical engineering
- Understanding of fundamentals of optics and spectroscopy (advantageous, but not necessary),
- Working knowledge of fundamental and intermediate statistics, with keen interest to learn advanced multivariate statistical techniques,
- Proficiency in programming (particularly MATLAB),
- Willingness to conduct research at multiple sites (this project will involve multiple experimental studies in Australia and Finland).

If you meet these criteria, please contact one (or all) of the project supervisors immediately.

Supervisors' contacts:

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