

Department of Electronic Engineering

Thushara Perera

BEng(Elec)(Hons), MEng(Biomed) La Trobe

Room: PS2 129A

Phone: +61 3 9479 3022

Email: t.perera@latrobe.edu.au

Research

Currently I am undertaking research in the field of Biomedical Engineering. The aim of my research is to develop a technique to monitor the consciousness level of a patient undergoing general anaesthesia for a surgical procedure. General anaesthesia is an umbrella term encompassing hypnosis (unconsciousness), analgesia (pain relief), amnesia (prevention of memory formation) and paralysis (prevention of movement). Anaesthesia temporarily prevents sensation, allowing patients to undertake surgical procedures without distress or pain. During general anaesthesia the patient is kept in a carefully controlled state of unconsciousness.

Patients are very anxious about surgical procedures. Their main fear is death: “will I wake up at the end?” Their second fear is awareness: “will I wake up during the operation?” Under general anaesthesia the patient’s level of consciousness (or depth of anaesthesia) fluctuates. To prevent the patient from regaining consciousness prematurely, the anaesthetist must continuously monitor the patient and administer drugs. Several clinical signs, such as changes in heart rate and blood pressure, are indicative of increasing consciousness. These signs are highly subjective and rely upon the opinion and experience of the anaesthetist. Ideally, the measurement of consciousness must be quantifiable, easily interpreted and independent of anaesthetic technique and surgical procedure. Commercially available devices currently on the market are unable to make quantifiable measurements and their reliability is constantly scrutinised in professional publications.

