



Gold Coast Health
Building a healthier community



GCUH ICU Research Workshop

21st July 2017

Applying AI to improve ICU care and outcomes

Background

There are increasing research efforts applying AI to the challenge of improving quality, efficiency and safety of health care delivery. ICU is an ideal platform - a data rich environment with close monitoring of patient conditions from multiple devices and dedicated clinicians, utilising many interventions to ensure timely, safe and efficient care delivery. In Queensland, we have the added advantage of the Metavision ICU Clinical Information System, operating for several years at most major ICU sites. To date data use has been predominantly operational – however increasingly this data resource is being valued for both its depth and richness, ideal for Big Data analytics and AI techniques.

Although a fledgling area internationally, there are several Queensland research groups with knowledge, interest and expertise in working with ICU data and AI methodologies. The initial interactions between these groups has identified a desire to work collaboratively to improve outcomes, and thus agreement to organise the first AI ICU research workshop at the GCUH campus, to be held on the 21st of July, 2017, on the ground floor of the PED building (E block, G 014).

Workshop Objectives

Firstly we will articulate existing research work, activities and expertise from each group, with an overview presentation per group followed by specific poster presentations. This will help establish the basis for near term collaborations across teams, both strengthening and expanding AI in ICU research.

Secondly we will develop a longer-term (3 year) plan, identifying important areas such as key research themes, collaboration models between researchers and between clinicians and researchers, current and future required resources, funding opportunities and potential commercialisation paths. Focus will be both on improving patient care processes and outcomes, including improving the business of Health.

The ultimate goal is to establish the Gold Coast and Queensland as a leader in AI for digital health.

Suggested topics

The main topics will focus on the use of AI and Big Data in ICU settings, including:

- early detection of imminent critical health conditions and their alerting
- algorithms to support better real time prediction of health outcomes
- personalised medicine topics such as optimal medication dosage
- algorithms to augment clinical decision making and treatment
- prediction and avoidance of iatrogenic complications.
- Care variance analysis and pathway optimisation
- Improving understanding of clinical trajectories and patient flow
- New knowledge from examining large data sets (deep and/or broad)

Provisional Workshop Program

08:30 Opening – GCUH CEO

08:45 Introducing IntelliHQ and Data Platform (Dr Brent Richards and Dr Kelvin Ross)

09:00 Overview by group leads - Prof. Xue Li (UQ), Prof. Bela Stantic (GU), Prof. Jin-Song Dong (GU),
Dr Adrian Grep (Bond Uni) Dr Brent Richards (GCUH ICU)

10:00 Poster Presentation (Session I, 4 posters)

10:30 Morning Tea and Networking

11:15 Poster Presentation (session II, 8 posters)

12:30 Lunch and Networking

13:15 3 year plan – research topics and teams

14:15 Afternoon Tea and Networking

15:00 Action Plan formulation for building and extending the research collaborative

16:30 Workshop close

For further information, please contact Brent Richards, Kelvin Ross or Zoran Milosevic, or visit the IntelliHQ.com.au website.

If you would like to attend the workshop, please email Alex (GCESOSSP@health.qld.gov.au) with your name, institutional affiliation and area of interest. Numbers will be limited to 50 participants.