AUSTRALIAN INSTITUTE
OF HEALTH INNOVATION
Faculty of Medicine and Health Sciences

MACQUARIE University

Study the exciting world of digital health

CENTRE FOR HEALTH INFORMATICS (CHI)

Three flexible study pathways

1. DOCTORATE (PHD)

2. MASTER OF RESEARCH (MRES)

3. MASTER OF PHILOSOPHY (MPHIL)

1.


4.

1. Prof Enrico Coiera presenting at The Big Data Conference, Sydney 2015
2. A/Prof Farah Magrabi's interview "Health IT doesn't guarantee safety", on ABC Radio 2015

3. Senior Research Fellow Dr Guy Tsafnat presenting at the Translational Medicine Symposium in Melbourne, 2015
4. Graduating Master's student Agam Misra, 2014


2.


5.

3.


6.

5. Research Assistant Paige Newman presenting "Healthy.me Intervention for Rotator Cuff Repair Patients" at the CHI Research Clinic, 2016
6. PhD student Toby Hodgson presenting "The safety and efficiency of using speech recognition for performing clinical documentation tasks within an EHR system" at the CHI Research Clinic, 2016

Research students have the opportunity to work with their supervisor to pick a topic that meets their interests and future career needs.

Postgraduate projects

EXAMPLES OF PROJECTS ON OFFER INCLUDE:

SUPERVISOR: A/PROF FARAH MAGRABI

- Engineering safe digital health technologies to prevent patient harm
- Using cognitive models to improve the design of computer interfaces
- Patients safety risks of consumer health technologies
- Cybersecurity threats in health

SUPERVISOR: DR BLANCA GALLEGO LUXAN

- Rethinking risk scores in clinical practice
- Analytics for precision medicine in general practice

SUPERVISOR: DR ANNIE LAU

- Surgical informatics for patients and consumers
- Role of digital health in patient-clinician relationship
- Role of patients in preventive health and patient safety informatics

SUPERVISOR: DR THIERRY WENDLING

- Survival-analysis for big data in medicine

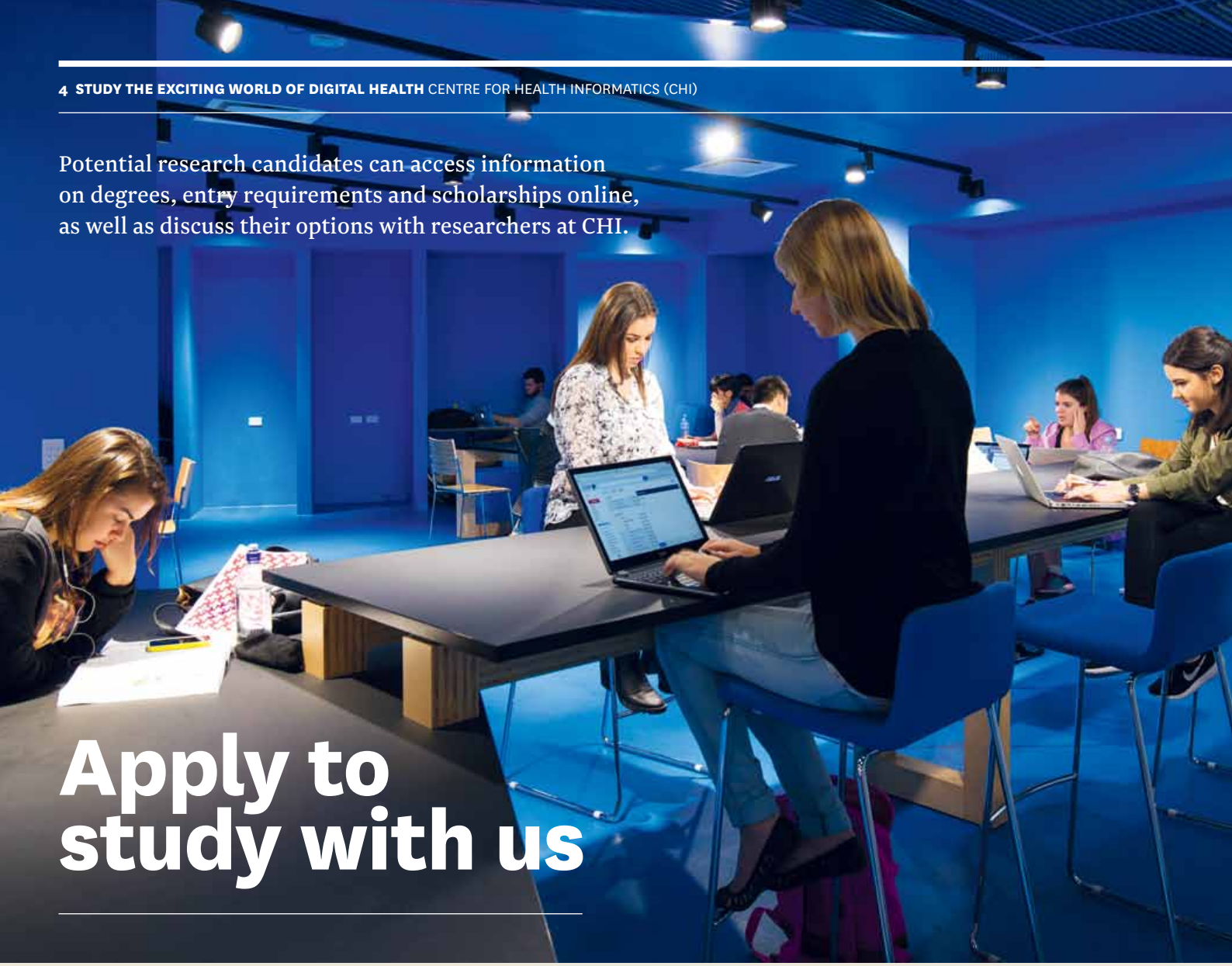
SUPERVISOR: DR GUY TSAFNAT

- Agent based evidence summary from scientific papers
- Clinical decision support from genetic and hospital data

SUPERVISOR: DR ADAM DUNN

- Automatically extracting competing interest disclosures from published articles
- Citation recommender systems for supporting systematic reviews of clinical trials
- Location inference of social media users for public health applications
- Forecasting public health outcomes by measuring online information consumption

Potential research candidates can access information on degrees, entry requirements and scholarships online, as well as discuss their options with researchers at CHI.



Apply to study with us

‘Today’s research students have the opportunity to take health informatics to a new level.’

PROF ENRICO COIERA

NEED A SCHOLARSHIP?

hdr.mq.edu.au/information_about/Scholarships

HOW TO APPLY

hdr.mq.edu.au/information_about/how_to_apply

IMPORTANT DATES

mq.edu.au/research/phd-and-research-degrees/how-to-apply/important-dates

FIND A SUPERVISOR

mq.edu.au/research/research-centres-groups-and-facilities/healthy-people/centres/australian-institute-of-health-innovation/centre-for-health-informatics

ENTRY CRITERIA

MASTERS BY RESEARCH (MRes)

A Masters degree with a thesis component, MBBS or Bachelors Degree with publications, conference presentations and/or industry reports.

DOCTOR OF PHILOSOPHY (PhD)

A Macquarie University’s Master of Research (MRes) with at least 75% in second year of the MRes:

- or Applicant who has completed a Master of Philosophy;
- or Applicant to have completed Masters degree from another institution with major research component: the research component is expected to be of an equivalent scale/scope to the Macquarie University MRes thesis. Performance to be at Distinction level (75% or greater).

Our graduates

WHERE ARE THEY NOW?

PROFESSOR VITALI SINTCHENKO

Professor Sintchenko completed his PhD in Medical Informatics in 2005 and is now an informatician who conducts research on biosurveillance of communicable diseases. As the Director of the Centre for Infectious Diseases and Microbiology - Public Health, a translational research hub funded by NSW Health, he leads a public health and diagnostic microbiology team working toward improving laboratory and epidemiological investigations of communicable diseases. He is the Chair of the Commonwealth Public Health Laboratory Network and he is a Fellow of the Royal College of Pathologists of Australasia and the Australian College of Health Informatics. He is widely recognised and has published over 150 full-length peer-reviewed papers, 5 book chapters and 2 books with >700 citations. His paper in *Nature Microbiology Reviews* laid the foundation for pathogen profiling utilising phenotype-based methods with genomics, proteomics, and sequence-based typing. Professor Sintinchenko's other qualifications include an MBBS and he is also a FRCPA and FACHI.

DR MEI SING ONG

Dr Mei-Sing Ong completed her PhD in Medicine in 2011, and is now a Postdoctoral Research Fellow at Harvard, as well as a NHMRC Early Career Fellowship recipient. In addition to patient safety informatics, which was the focus of her PhD, Dr Ong's research interests include applying advanced informatics methodology to large clinical datasets to better understand chronic diseases and their varying manifestations and treatment efficacy. Dr Ong's work has attracted over 470 citations, including a recent high-impact study on the economic and human costs of breast cancer screening. Dr Ong's PhD work was awarded the prestigious best student paper award at the 2011 American Medical Informatics Association's Annual Symposium, beating students from universities such as Stanford, Harvard and Vanderbilt – the first Australian to ever achieve this distinguished honour. Dr Ong's other qualifications are a Bachelor of Computer Engineering (BE) and a Master of Biomedical Engineering (ME).

DR ROSEMARIE SADSAD

Dr Rosemarie Sadsad completed her PhD in Medicine in 2012 and is now a Hospital Scientist/Postdoctoral Research Fellow at the Centre for Infectious Disease and Microbiology. Her research interests are in translational pathogen genomics and informatics. She has worked on the automated synthesis and reporting of "big health data", technology for secure, remote sharing of medical images, and a clinical decision support system for the treatment of behavioural and psychological symptoms of Dementia. Her PhD developed a policy evaluation tool to simulate infection control policies for reducing hospital acquired infections. This tool informed infection control policies for a Sydney hospital and is now used as a staff and student education tool. She is a member of the Marie Bashir institute for Infectious Diseases and Biosecurity Pathogen Genomics team and the National Public Health Laboratory Network Expert Advisory Group on Whole Genome Sequencing. She is currently developing an automated genomics surveillance system for drug-resistant, healthcare associated infections. Dr Sadsad's other qualifications are a Bachelor of Computer Engineering (BE) and a Master of Biomedical Engineering (ME).

Current students in industry

TOM BOWDEN
MBA (IT)
Currently working at Health Link

PHD TOPIC: "THE ROLE AND BENEFIT OF ACCESSING PRIMARY CARE AND PHARMACY PATIENT RECORDS DURING UNSCHEDULED CARE"

WHAT'S YOUR PHD ABOUT?

My PhD is about trying to establish how useful it is for clinicians to have access to a patient's medical records when care is needed unexpectedly. Additionally, I'm trying to develop a wider understanding of the options available to us in developing electronic medical records systems.

WHY THIS TOPIC?

Worldwide, the question of how to go about assembling patient medical records is a matter of considerable interest. There is widespread agreement that organising medical records so that they can be reused is important, especially when a patient needs care suddenly and unexpectedly. What medications are they on? What are they allergic to? What is their recent treatment history? These are all important questions. Knowing these things is very useful in an emergency. However, there are very few examples of patient information being made accessible when it is needed in an emergency care setting, so we don't know too much about this topic.

A number of issues come into play. They include: ensuring that all parties have confidence that the information they are seeing is complete and accurate; ensuring that the information is readily accessible in a high-pressure environment; and also much deeper issues including privacy - whether or not patients trust the health system's ability to keep their personal information securely.

I decided that I wanted to begin developing my understanding of how we should optimally be going about building electronic health records systems by getting a better understanding of the benefits of having accurate and up-to-date information available in emergency care.

WHAT MADE YOU DECIDE TO STUDY WITH CHI?

I had already been working with worldwide leaders in this field, I had developed a better understanding of the background of this topic in the most meaningful way possible.

It was difficult to know where to start. However, I met Prof Enrico Coiera who is recognised as a leader and I somehow persuaded Prof Coiera that we could generate some important research and advance our understanding of this important topic. And so it began.

WHY NOW?

There is no time like the present. Countries all around the world are spending very large sums of money developing huge electronic medical records systems and are experiencing variable results. Certainly very few countries are gaining any tangible benefits from large investments in shared electronic records systems. Getting better at developing these records systems is of critical importance to every healthcare system.

IMPACT ON HEALTHCARE?

I am expecting to show that gaining benefits from making primary care records available is achievable but extremely difficult to do. I also expect to show that some of the commonly accepted wisdom in this field needs careful reappraisal.

ADVICE FOR OTHERS CONTEMPLATING DOING A PHD?

Get ready for a long haul! Ensuring that you are doing something you are really passionate about is, I think, the most important thing, because a marathon effort is required. It is going to be very difficult for you to put in the required level of sustained effort, if the topic you are studying isn't really important to you.

TOBIAS HODGSON
BSC (COMP SCI), MBA
Currently working at eHealth NSW

PHD TOPIC: "THE EFFECTS OF SPEECH RECOGNITION NAVIGATION AND INTERACTION WHEN PERFORMING CLINICAL DOCUMENTATION TASKS WITHIN AN ELECTRONIC HEALTH RECORD SYSTEM"

WHAT'S YOUR PHD ABOUT?

My PhD is about looking at the efficiency and safety of using speech recognition for entering electronic clinical documentation into an Electronic Health Register (EHR) system within a clinical environment.

WHY THIS TOPIC?

I have used, supported and implemented numerous speech recognition systems, during which I was amazed at the little information provided to management to justify these implementations. Also, there are very few studies on speech recognition as a documentation/interaction tool within EHR systems. Which I questioned!! This prompted me to look into the real world of speech recognition systems to see their outcomes.

WHAT MADE YOU DECIDE TO STUDY WITH CHI?

After looking around at several institutes, I found that the work of Prof Enrico Coiera and A/Prof Farah Magrabi was best aligned with my research interests. Together in discussion with them, we managed to create a research topic which would generate important research.

WHY NOW?

No time like the present!!

I am employed by eHealth NSW where I manage the Voice Recognition service throughout NSW public hospitals, giving me a great opportunity to use my research skills honed at CHI. I also have an opportunity to leverage the contacts and position at my day job to enrol clinicians in the trials required for my PhD research.

IMPACT ON HEALTHCARE?

This research will give us greater opportunities for speech recognition. It will make life easier for clinicians when entering patients' data.

I hope and believe that the outcomes of my research will lead to real-world changes and improvements to clinical documentation practices.

ADVICE FOR OTHERS CONTEMPLATING DOING A PHD?

My advice: acknowledge that a PhD is a very big commitment, so ensure that your area of research is something you are very passionate about.

FOR MORE INFORMATION

hdr.mq.edu.au

Higher degree research handbook
goto.mq.edu.au/hdr-handbook

Further information about the Centre
aihi.mq.edu.au

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