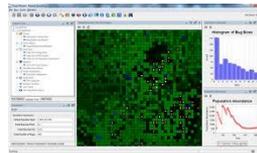


Health Innovation Projects



Dr. David Bell
Prof. Terry Young



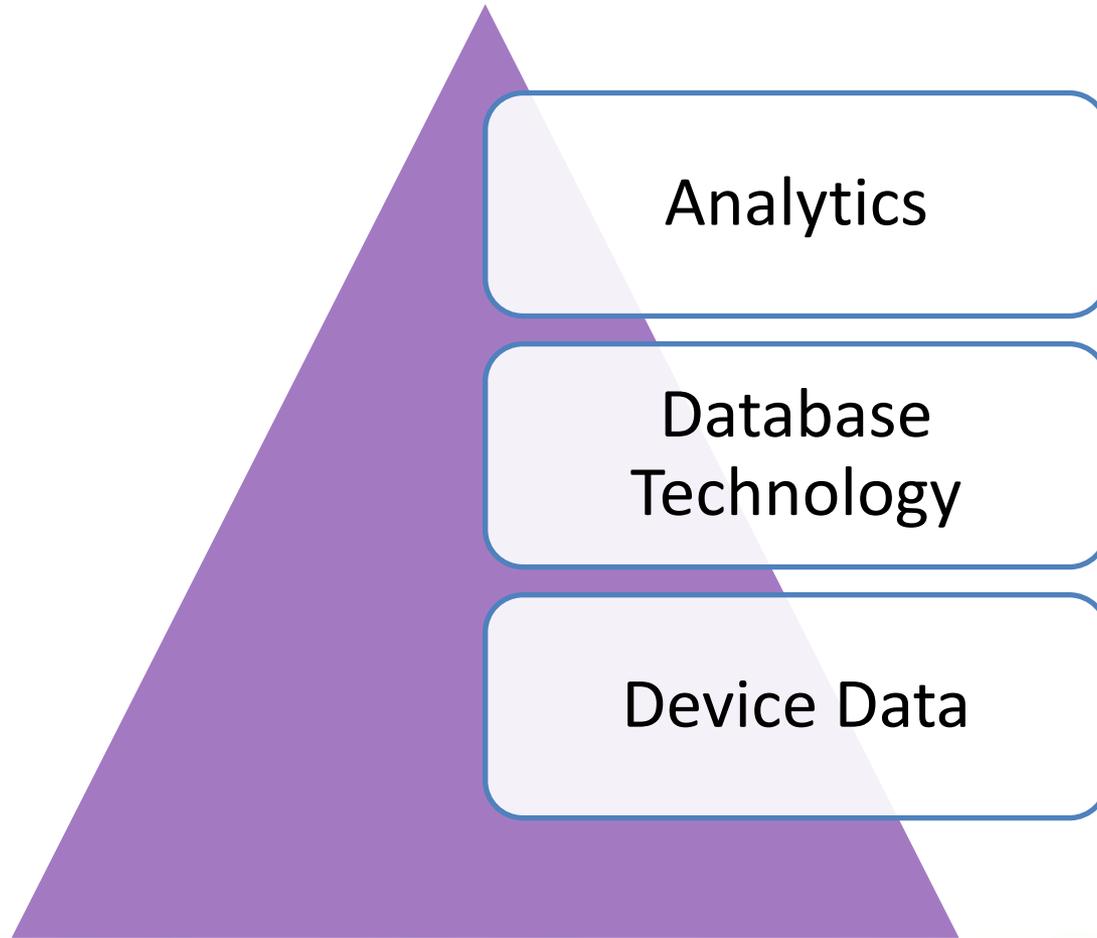
Health Innovation Projects (HIP@CS)

Smart cities allow citizens to more actively engage with their surroundings with smart phones, social media and sensing devices. A network of interconnected devices has been termed **The Internet of Things (IOT)**. This project aims to explore the augmentation of such cities by combining sensor technologies from a number of devices to improve healthcare and the health system. A smart health scenario is chosen, where the citizen can monitor their own health whilst also generating data trails that record their lifestyle. Such smart health scenario is premised on software and services that collect, store and analyse data in a **natural** and **pervasive** manner (embedded within everyday life).

HIP@CS will provide a number of innovative FYPs that address opportunities and use specific **devices, cloud big-data/nosql storage, intelligent data analysis** and **visualisation**. They each provide an opportunity to build on your data and software development knowledge using industry and state of art technologies.

Although each project is individual (and assessed as such), the projects offers a real chance to interconnect and experiment on a wider environment with both technology and usability opportunities. The group will also work together on literature gathering and analysis. The supervision will be carried out by Dr. Bell and Prof. Young; and include meetings with health companies that provide industrial context and perspective. You will have regular meetings with academics over the course of the year.

Project Types



Links to research



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Main Page

Tea-PoCT: Tools for evaluation around point of care testing

The Tea-PoCT project aims to provide users with the methods, framework and the evidence for making early diagnoses and to see it refined into a structured library. The background to this is MATCH project, a 10-year project, particularly for use when people have little time and few resources to make a case. Tea-PoCT builds technologies, along with supporting data. The platform will involve three elements:

- An on-line version of a MATCH Headroom Method, customised for Point of Care.
- An open source library of data, with a Wiki portal for suppliers to add evidence.
- A set of open interface standards for apps and data extraction (the Wiki is free-format input).

This is highly scalable and, beyond Tea-PoCT, lies the prospect of much larger projects. For instance, the when putting together bundles of care. Students will be able to expand the capabilities by writing apps for t

A Wiki will allow companies to submit their data in free format. The aim of the wiki is twofold. Firstly, it can turn validated information from the wiki into structured information for the Big Data library utilising NOS and a framework for investment and pricing decisions – to diagnostic companies.

Analysis of Point of Care products

The platform will undertake basic economic evaluation to place products on the cost-effectiveness curve an



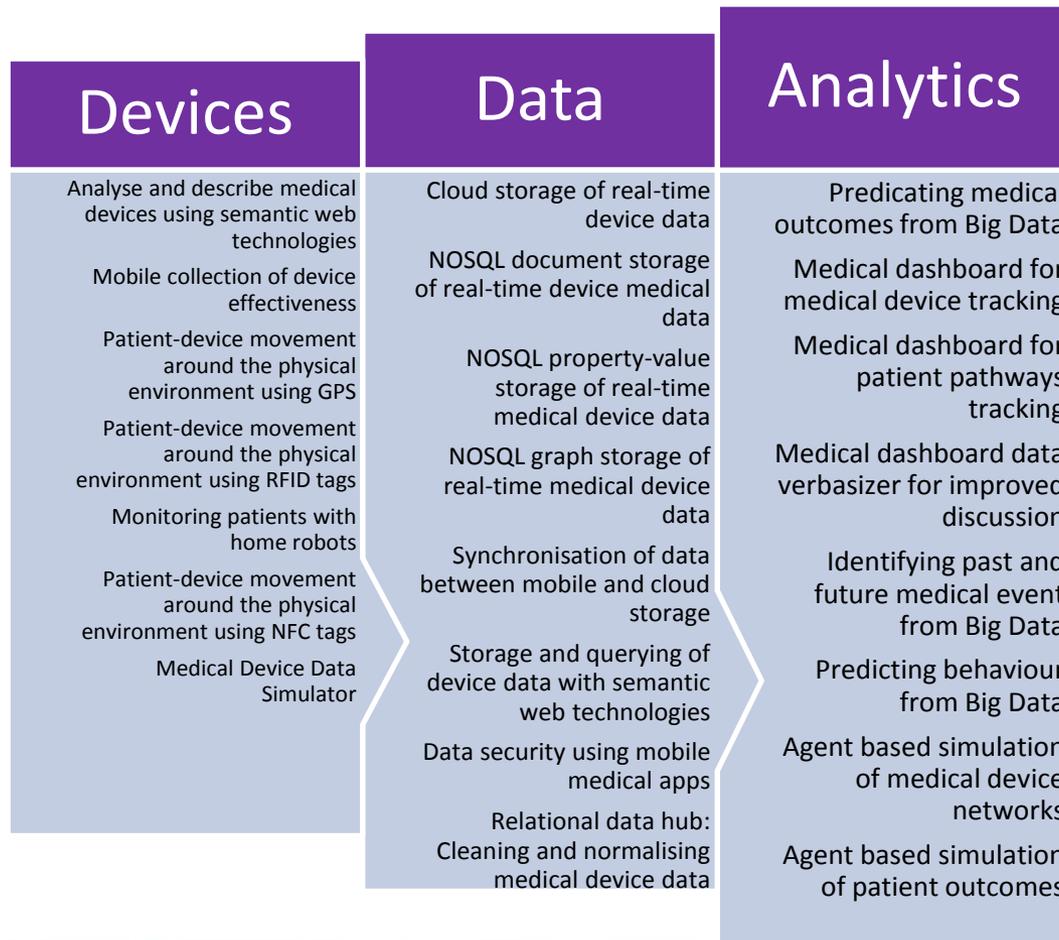
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Technologies



Projects



Project Titles – Devices

1. Describing medical devices using semantic web technologies
2. Mobile collection of device effectiveness
3. Patient-device movement around the physical environment using GPS
4. Patient-device movement around the physical environment using RFID tags
5. Monitoring patients with home robots
6. Patient-device movement around the physical environment using NFC tags
7. Medical Device Data Simulator

Project Titles – Database Technology

8. Cloud storage of real-time device data
9. NOSQL document storage of real-time device medical data
10. NOSQL property-value storage of real-time medical device data
11. NOSQL graph storage of real-time medical device data
12. Synchronisation of data between mobile and cloud storage
13. Storage and querying of device data with semantic web technologies
14. Data security using mobile medical apps
15. Relational data hub: Cleaning and normalising medical device data

Project Titles – Analytics

16. Predicating medical outcomes from Big Data
17. Medical dashboard for medical device tracking
18. Medical dashboard for patient pathways tracking
19. Medical dashboard data verbasizer for improved discussion
20. Identifying past and future medical event from Big Data
21. Predicting behaviour from Big Data
22. Agent based simulation of medical device networks
23. Agent based simulation of patient outcomes