



INNOVATING FROM DAY 1 – GRAND CHALLENGE TO NEW PHD STUDENTS

OPTIMA case study 3

IP Generation: Grand Challenge

Our Grand Challenge Journey

by Paul Cowling and Dawn Gillies (Third year OPTIMA students)

At the beginning of the first semester of the first year of our OPTIMA PhD, we, along with our colleague Clara Vergez, were set the challenge of “increasing the 5 year survival rate of pancreatic ductal adenocarcinoma (PDAC) by 10%” by our mentor Dr Colin Campbell. The challenge was split into two parts: first, learn the background of our disease; second, devise a solution to solve your challenge. Initially we needed to understand the complexity of what PDAC was, the biology and the statistics before we could devise a solution to our challenge. We then presented our findings to both fellow teams and mentors from OPTIMA. Following this we then went about the second part of our task – devising a solution.

Given the expertise within our team we sought out two potential solutions. The first of these was looking at biological biomarkers of the disease, the second looked at utilising ultrasound texture analysis in real time. As part of this process, we were also required to prepare disclosure forms and decided that there was more novelty in the idea of image analysis as opposed to biomarker assays.

In December 2015 we presented our solution to fellow OPTIMA students and mentors. After a positive response to the commercial opportunities for our idea from the mentors, we discussed as to whether our ideas and concepts could eventually become patentable technology. After several discussions we began discussions with Edinburgh University’s research and innovation (ERI) department.

During the process of evaluating the suitability of our technology for patenting we sought opinion from our colleagues at the University of Edinburgh – both in the physical sciences and at the clinical interface. During some of our most recent discussions, it was suggested that the technology we had developed could be of utility beyond diagnosis of PDAC and that it might find more tractable application in the diagnosis of liver disease.

Following on from this development, the idea is being taken forwards initially as a Masters project (with Signal Processing and Communications) to collect preliminary data. It is then planned to go forwards as a



PhD project at the university as a new collaboration between the School of Engineering and the Medical School. ERI are looking to attract industry funding for the PhD project to enable a quick route to translation and commercialisation.

Innovating students - KKI Associates perspective

By Dr Kevin Parker

Kevin Parker is the founder and Principal of KKI Associates, who specialise in consultancy and training for entrepreneurs in high technology start ups. Among other things KKI are Life Science Innovation advisors to Scottish Enterprise

I met Paul, Dawn and Clara during the first month of the first term of their first year on the OPTIMA CDT. I mentored them in a one day workshop introducing the basic tenets of technology commercialisation, and asked each group to come up with some ideas for the Grand Challenge presentation. Having only a short workshop, so early in their career at OPTIMA, I wasn't expecting too much from any of the teams when I attended the Grand Challenge presentations. However I was more than pleasantly surprised.

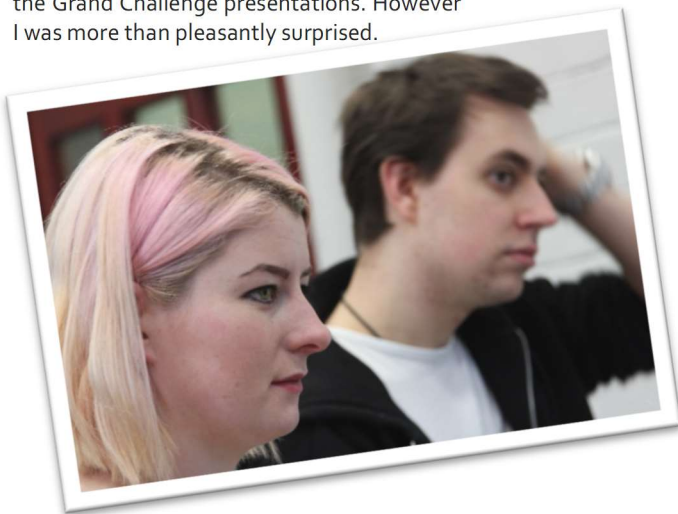
comparatively affordable diagnosis using ultrasound rather than MRI thus made perfect sense even to a non-specialist.

My comment on the day was 'you should take this forward – turn the idea into a real project'. I am delighted to see they have taken up the challenge so capably. I look forward to following the progress of the project and helping where we can!

DIRECTOR'S PERSPECTIVE

It is inspiring to see our students generating their own IP at such an early stage in their PhD training. Since the end of the Grand Challenge exercise, Dawn and Paul have pushed their idea forward and forged a new research collaboration between Engineering and Medicine. This project is a fantastic embodiment of the culture change we endeavor to promote through OPTIMA. As a Grand Challenge mentor, it's great to work with students like Dawn and Paul who are so committed to developing new ideas to address clinical problems.

Dr Colin Campbell,
OPTIMA Director and Grand
Challenge Mentor



Each of the teams on the day produced remarkably good presentations. I thought of my business partner Dr Tony Aldhous, who acts as 'Gatekeeper' for the Grampian Bio-partners Angel syndicate. He would have been delighted with many of the presentations had they been given by experienced management teams pitching for real projects seeking investment.

In this high quality group Paul, Dawn and Clara's presentation stood out for the lucid way it explained the current state of diagnostic technology, and the direct link between early diagnosis and survival rates. Their idea of developing quick and

