Ishbel's projects:

Areas: security, metrics, testing, evaluation, education.

Possible **CS Msc/ BSc** projects :

1. Building a test bed for Java/ Python/ C to take metrics and develop text cases and coverage to ensure those metrics (the reverse of most test beds)
2. Take information from virsusradar, metasploit etc and analyse the code affected, the code tested/ analysed etc to get metrics for security coverage. This could be adapted to be a *Learning Object* which identifies code executed, at risk or altered (see next)
3. Security Visualisation. Take code from a large project and paint/colour the code that directly calls routines that would be affected by viruses or IDSs. That is, indicate in a system, the code that interacts with potentially damaged systems or is known to be safe.
4. Using jtest discover the flaws and inadequacies and embed a "better" or more appropriate testing suite.
5. Virtual code learning, viewing and testing. What is learnt here from 3D demos/ views of code glps? Can tests be seen as a colour mapping/ battlemap of the code.
6. Anything to do with evaluation visualisation or educational aspects of security.
7. Patterns – develop code through codechart or checkpoint and then work out metrics between pattern and code to determine the impact of the pattern.
8. Automated tool for analysing patterns and building test cases
9. Auto tool for applying test cases to static class / built code
10. Agent based, Intelligent roaming code checker either walking through code or throwing data at code to see if code altered.
11. DLP and steganography; use steganographical techniques on a variety of images to determine if changes are visible or detectable (by hash or size comparison).
12. An AI model of bee behaviour.

IT (&MN) MSc projects:

1. Online Smart Tourism System. Build a system to allow QR code markers to take a tour guide system and connect it to a library of recorded paragraphs and install it. Analysis of requirements, distances between QR/ information, amount of information at any one time. Possible liaison with St Andrews Preservation Society.
2. Virtual Orientation for the University for overseas students– a welcome to St A, some basic tutorials about the university processes and perhaps assessment.
3. Language learning in virtual worlds – some basic classes or demos.
4. Large scale assessment – how to automate individual feedback or do assessment within virtual worlds.
5. Building of a St Andrews virtual world for virtual orientation
6. Historical – St Andrews ley line maps and points of interest, over time, in a virtual world (even a geological layout)
7. Historical – 3D maps of mills and waterways - a virtual worlds of medieval St Andrews.