Practiced Based Learning to Build Societal Values into AI and AI Opportunities (SCALE, DSAIR – Areas of Fintech, Healthcare by Harold Chan, DSAIR, under Prof Ong)

Artificial Intelligence is becoming more than just a field of research in academia. AI is extending beyond using algorithms and computers for research, but also helping people and organizations solve increasingly complex problems. AI plays into every aspects of our lives and promises vast potential to generate prosperity and opportunities, from Healthcare and Education to how mobile payments are digitally secured.

In SCSE, high ability students can participate extensively with our leading industry partners to create AI centric solutions in these and a whole range of other opportunities. For example the partnerships with SingTel and Alibaba (a Chinese multinational e-commerce, retail, Internet, and tech giant) seeks to help boost operating efficiencies in various industries and explore further technology breakthroughs and real-life AI solutions respectively.

Under a 5 year partnership, NTU, NRF and SingTel established a Cognitive and Artificial Intelligence Lab for Enterprises (SCALE@NTU), to develop applications for use in the areas of public safety, smart urban solutions, transportation, healthcare and manufacturing. Collectively the partnership will generate enormous opportunity to accelerate innovation in the fields of AI, advanced data analytics, robotics and smart computing.

The partnership with Alibaba on the other hand aims to push the frontiers of AI and deploy AI solutions in scenarios ranging from home, retail, community and urban transportation to hospitals and nursing homes. Using AI, we can address fundamental societal challenges such as an aging population, which is a high issue for cities with a rapidly ageing population such as Singapore.

Naturally, the competition for AI talent in the industry is going to get very intense globally, including in Singapore. You can embark on your AI career starting from here at NTU and in the future contribute towards not only technological progress, but also human progress as well.

Here are some examples on the Future of Healthcare and Fintech that the Data Science and AI Research Centre@NTU are building. You can contribute ideas and create the conditions for the AI solutions on apps to impact society.

Healthcare
Natural Language Understanding - Healthcare providers nowadays capture a large amount of data in digital form. Naturally, the next step is to discover knowledge from the large amount of data for better healthcare services. The discovered knowledge can enable outcome-based scenarios such as shortening patient waiting time, reduction of unnecessary consultation, and others critical to the health system. A key focus of this is on effective mining of medical records.

AI Games - Serious games is a genre that focuses on games and gamified apps for serious uses. For example, by using AI to analyse data generated during in-use sessions and understand what is likely to happen, people with cognitive or behavioural disorders can be presented with effective gamified options that are therapy-oriented. One example is emotion detection in games that can help emotion regulation in children with autism spectrum disorder (See Figure 1). Another is simple games capable of eye tracking that helps to detect traumatic brain injuries such as concussion. Through collaboration with the Lee Kong Chian School of Medicine, students at SCSE play a key role in developing such games using IntelliK, an in house developed AI tool.
Fig. 1. Emotion detection can be used in IntelliK to develop games for emotion regulation in children with autism spectrum disorder. Example above corresponding to ‘EmoSphere’ - a special feature of the software deciphers facial activity to determine emotions and the game actions that should occur.

Fintech
Mobile payment applications can be exposed to various limitations such as vulnerability to cyber-attacks, inability to support offline transactions, and financial damages to business and users caused by fraudulent activities. These challenges inhibit the evolution and efficiency of a payment ecosystem, which affects the power of the consumption society. At the Data Science and AI Research Centre@NTU, we are enhancing three important properties of a mobile payment ecosystem: convenience, security, and stability, in order to improve access to services largely driven by AI on their Apps. With Industry partners like Paypal, we are actively nurturing Singapore’s next generation of FinTech talent to drive innovation out of Singapore. Students are able to gain access to some of PayPal's best talent, resources and experience.

Be at the forefront of change. AI is coming and it can create new career opportunities for you when you have gained the knowledge and experience from a practice based learning environment that is truly unique. Join us to build societal values into AI.