The advent of financial technology (fintech) has revolutionized consumer banking and investment banking through leveraging advances in mobile payments, blockchain, machine learning, data analytics and cloud computing to streamline various financial processes and improve overall financial inclusion. Examples of fintech services include online banking, digital wallets, peer-to-peer lending, AI-based advisors for investment management and blockchain based crypto-currencies. Fintech has the potential to transform the financial industry, disrupting existing traditional practices and I wish to pursue scientific computing and data analysis in this exciting area. My interest in artificial intelligence started as a hobby with coding self-learning neural networks for gaming bots. Given the opportunity to learn more, I completed an EPQ investigating the use of neural networks in disease diagnosis. This project helped further my knowledge in real-world application of these algorithms. Despite image-analysing neural networks achieving the accuracy of experienced human specialists for diseases such as breast and skin cancer, my project highlighted challenges such as their black box nature obscuring the transparency required for clinical qualification and overfitting/imbalanced data resulting in their use for common diseases only. In healthcare, another important factor is human interaction where patient consultation is as important as the diagnosis. The EPQ helped me develop skills such as critical literature review, analysing survey data and structuring my thoughts coherently. Work experience at MediaTek allowed me to develop C#/Javascript programming skills; there, I wrote an application to automate the logging of mobile network traffic from the 5G baseband modem of mobile phones. It was challenging at first since the learning curve was steep and the work was fast paced. I worked in a team of 5 and adopted the team's scrum methodology; every week, my code was compiled and reviewed with team feedback, improving with each cycle. At AIXTRON, a semiconductor equipment company, I learnt intuitive GUI design whilst designing the touch-based interface for two of their products. These experiences brought to light the importance of agile development and intuitive user-centric design. I used these skills in my GCSE Design and Technology project, where I created an automatic pill dispenser for which I attained the top mark and received the subject award. The dispenser had its own hotspot which allowed users to configure the dispensing to accurately serve their medical needs; I designed and 3D printed the hardware which was integrated with drive/sensor electronics and a web server running on a Raspberry Pi zero SBC. This project taught me multi-language implementation, from hardware controls (Python) to high-level user interaction over the web (html/javascript/http requests). Outside school, in 2018, I received an award from the Mayor of Cambridge for creating the website for the local Blue Plaque Society. This involved identifying the GPS locations, taking photos, and compiling the history of each of the 35 Blue Plaques and presenting all this information online in a modern format for visitors to Cambridge. Participating in the Young Enterprise scheme, I was responsible for the e-commerce website and branding of a T-shirt company formed by students. I created various logos and posters to promote our products; my work was awarded the best logo design prize for the Cambridge region. To further refine my skills I also took upon an internship at PolyAI in which I worked as a Fullstack development engineer to design and implement a notification system for their internal engineers. Through this, I was introduced to new skills regarding infrastructure design, cloud computing and working with services such as AWS. This involved me hand crafting a new database schema to store each notification keeping in mind the onset of possible changes that may be made beyond my involvement, teaching me the importance of building with flexibility in mind. Additionally, at Toshiba I worked to produce 3D reconstructed environments of Cambridge to aid with computer vision deep learning. This was done using 360 images and the OpenSfM library. Pursuing 3D environments and similar technology such as virtual reality and augmented reality I took upon work at the University of Durham to visualise various physical phenomena in a virtual world such as viewing magnetic fields in real time and light rays through lenses show casing various unique characteristics such as chromatic aberrations. Through these, I learnt the importance of clear client requirement specifications, teamwork, keeping to budgets and building a business. In my spare time, I challenge myself by learning new topics such as data gathering chat bots, marching cubes and recently multiplayer networking. I enjoy taking part in multiple Game Jams with a small group of friends in which only 48 hours are provided to develop a game from scratch with a given theme. This has taught me to work under pressure and communicate ideas in a small group effectively to reach our end-goals given a short deadline. I believe that a masters in this area would allow me to expand my knowledge and further develop my analytical thinking and programming skills.

Fintech has risen in prominence recently as financial companies embrace new technologies such as mobile, artificial intelligence and …