My proudest achievement is my Final Year Project in Computer Engineering at Trinity College Dublin, which I completed in September 2017. It involved the development of large-scale road grade profiles using Advanced Bus Transportation Systems. I successfully developed elevation maps of all 240 routes of Dublin Bus by analysing and processing a large volume of GPS data in a multi-stage pipeline. I also innovated a range of data cleansing algorithms.

I am proud of this project for a number of reasons. I carried out real-world research to solve a problem and I was amongst the only few people who did it, whereas most other students did a regular project like other courseworks. I analysed the seminal studies in the area and keeping their limitations in mind, I innovated an open-sourced and widely applicable solution with a larger vision to ease and automate the process, and contributed to the ongoing research. This is of vital importance in designing eco-routing solutions, determining vehicles' fuel consumption and accurate predictions of autonomous intelligent vehicles.

In addition, in the course of this project, I challenged and stretched my limits on all fronts - technical, academic, mental and emotional. I used a combination of different methods and technologies, picking the best for each task involved. I completed this project in 9 weeks, instead of 16 weeks allocated to other students, due to a family bereavement (the death of a close family member). The initial scope of the project was limited due to lesser time available, but I talked to my supervisor about expanding it and presented a work pipeline with deadlines for each stage (including writing the thesis) to show how I could achieve it. I did not mind working 12 hours a day and on weekends because I knew that was needed to get the job done. On a personal front, it was an emotionally challenging period for me, but I was able to gather enough strength to recover from the setback and keep moving forward to deliver results.

This had a profound impact. For my project and thesis, I was awarded a score of 98% unanimously by my supervisor and two other readers - this is the highest score ever in Trinity College's history, not only in Engineering but in any field of study. To mark the achievement, the 'School of Engineering Project Prize' was introduced for the first time and awarded to me. This is significant because a Final Year Project is an independent professional activity and it represents an integration of an engineer's technical competence and communication skills acquired throughout college life. Achieving a high score in this, therefore, meant that I had not only excelled at what I had learnt throughout my academic life but also that I had acquired the ability to use it to solve a real problem. Out of personal initiative, I, along with my supervisor, wrote a research paper on this project and submitted it to the 15th IFAC Symposium on Control in Transportation Systems 2018. I received a confirmation on its acceptance for publication last week and I also received a glowing review for the work I did and for my professional writing skills.

This project and thesis proved to be appreciably conducive to my learning and growth on all levels. I experienced that through perseverance and strategic planning, it is possible to achieve difficult goals. And sometimes, one has to stretch their limits as well as dare to ask for something to be given or allowed to deliver significant results.