Purpose Statement

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Interests: Electrical Engineering, Robotics, Embedded System
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I am currently a final year undergraduate in the University of Nottingham, China Ningbo Campus, majoring in Electrical and Electronic Engineering. Our campus of the University of Nottingham carries a complete British education, where English is the official working language.

During my undergraduate education, the professional and research-oriented engineering program inspired me to investigate further and deeper in the field of Electrical Engineering, including contemporary signal processing systems, interdisciplinary Robotics, and modern computing systems such as embedded system and computer engineering.

I have undergone an embracive and solid academic English ability training in my first-year study, which favors me a lot diving into Electrical Engineering area further. In the later year2 and year3 education periods, I accomplished several embedded-system based projects including Auto-navigate vehicle using Arduino and Raspberry Pi and doppler-effect based speed detector using Xilinx FPGA and STM32L. At the same time, I also have designed PCB and circuits in terms of power electronics and analogue electronics. All these project experiences enlightened me for further study of embedded system providing me fundamental ideals and skills in system design and software programming.

Operating and programming these trouble-shoot and vital devices to accomplish specific targets brings me unforgettable pleasures and a sense of achievement. On the other hand, embedded system is now the significant technology where IoT, 5G and AI are emerging and showing more importance. Therefore, combine these newly edge technology together on an embedded system is a trend and of wild use. In order to catch up this stream, I am aiming to choose the embedded system software track. The embedded software technology can enable me to combine AI and IoT together using world-wild machine learning templates (PyTorch and TensorFlow) and specific computational hardware (FPGA and AISC). Diving into such a filed not only meets my personal career goals, which is becoming an interdisciplinary expert in IT, but also can create countless opportunities and inventions.

As an extent summer research, focusing on audio speech processing using Python, I choose a graduate project which combines hardware (FPGA) and software together (C/C++ and VHDL) to drive hardware acceleration on signal processing and machine learning area. This project has met my initial expectation that communicating and interacting with both hardware and software. Meanwhile, it can also guide me into modern emerging areas where machine learning is the dominating strategy of signal processing. I believe the solid and strict requirements of this project and previously taught

materials will benefit me in later study and working.

More specifically, as AI is so significant and drives emerging demand, continuing my research and study in AI related engineering area not only meets my interests and strength but also provides me considerable employment opportunities. Therefore, I am aiming for a more advanced education program that equips me with strong and solid AI knowledge and then guide into deeper and more practical application in a complex engineering system.

During my past enrolled courses, I had been equipped with various solid mathematic knowledge including basic signal transform such as Fourier Transform, Z-transform and Laplace transform, advanced algebra and calculus and further numerical analysis methods. I am capable of dealing with data using those mathematical tools expertly, including function derivation and analysis in both time and frequency domain. On the other hand, in a multi-variable system involving multi-dimensional coordinator system and directional vectors, I am also good at vector calculus and coordinate system transform between Cartesian system, cylindrical system and spheroidal system. At the same time, for a certain physical model or dynamical mathematical modelling system, I can model such system using PDEs and ODEs then solve them in both numerical method and analytical method. I am now conducting my last advanced engineering mathematic course, which contains advanced matrices operation and linear algebra concepts with their application in signal processing area.

I believe that, I was equipped and trained with enough foundation engineering modelling tools and skills in terms of mathematic knowledge. Meanwhile, my extracurricular research and practical project experience provide me valuable problem shooting skills. My solid practical experience and academic capability will be my best advantages in pursuing such an advanced degree program. It is also an important and vital factor that, my personal passion and desire for higher achievement will help survive in a competitive environment under huge pressure.

KTH Royal Institute of Technology is one of the leading technology universities in the world. Sweden is also the one of most advanced developed countries and possessing the cutting-edge industry system. The research-based program arrangement provides me countless chances to meet the front focuses of embedded system in terms of embedded AI and more advanced ideas, also the solid and strict academic training in KTH enhances my self-development in my later life. In terms of abord living, Stockholm is a beautiful city with fantastic sightseeing and diverse culture. On the other hand, living in such a historic city can inspire my culture diathesis. At the same time, the origin place of Nobel Prize will enlighten my views in the prospective of all human evolution and civilization progress. Thus, applying to such a program related to embedded system and Machine Learning can meet my expectation both in career development and self-cultivation.