To whom it may concern:

I am planning to pursue graduate studies towards joint full-time Ph.D degree at your research center. The particular area I am interested into is natural language processing, machine-learning, text categorization or image processing.

We cannot fail to see that science transform city while technology better life. However, there is room for improvement in every corner. For instance, Sweeping floor is not capable of reading human voice order; Recognizing materials in a photo of dish means a lot to pregnant person or people suffering high pressure ,etc.

Accumulated essential foundation towards machine learning by hard-warding on academic study. My GPA ranked second in department computer, Donghua University and major GPA ranked first. During four-year study, I am luckiest enough acquiring National scholarship and awarding the title of excellent graduate in Shanghai.

Data science requires good mathematical competence which is my strength(single calculus:93%, advanced calculus 100%, linear algebra 96% and data structure 91%). In addition, I attended national mathematical contest in Modelling(MCM) twice and i made attempt to leverage grey prediction or BP neural network if dataset does not conform to linear regression with little original data; leverage principal component analysis or multi-variable linear regression to reduce number of influence factors and forecast; use gradient descent to find the optimal; evaluate the model by calculating loss function or mean-square error. Finally i achieved second prize in Shanghai in MCM twice, and attend “Shenzhen Cup” mathematical contest in modelling camp.

Well-equipped with theological knowledge, I put my learning into under-graduation project, Alumni online automation office system, which cooperate with alumni officers in Donghua University. This web project consists of unread/read message management, meeting-room booking management and applying database pool, by leveraging JAVA, JSP language, MVA-based struts2.0 structure and Oracle database. This graduation project was awarded outstanding undergraduate project in university. But student project is not equal to factory project.

With intention to learn cutting-age new technology, i pursue further master study in Trinity College Dublin, the top 1 unversity in Ireland. My chosen major is Networks and Distributed Systems. With intense study and research I grasped knowledge of middlewares, encryption algorithms in distributed systems and implemented peer-to-peer and centralized distributed system. In course work, I implemented p2p chatroom and analysis how many node could be utilised to reach the compromised goal of fault-tolerance and load balance. Worth noting is CITI upstart programme, a software start-up competition among Ireland universities to win entrepreneurial investment. Our team’s idea is called “Soosokan”, location-based search Item app. . My part of implementation of this APP is to ustilised java-REST to CRUD, leverage lucene API to index and search and use ArcGIS API to retrieve location information. We presented our software product to investors and persuaded them to buy our idea. Proudly, we, four of Chinese won 1st prize and investment fund in the competition with many English native speakers.

My master dissertation is “A personalised ontology and rule-based approach to managing message overload”. I work both individually and with research team in ADAPT center, leverage current semantic research (RDF,OWL) and Rule-based language JESS, with context to uplift/filter messages. In this essay, complex rules are applied to handle changeable context and multiform messages, use XPATH and JAVA to simulate messages and protege to generate ontology, in order to categorize messages and obtain priority score. At last this essay concluded that this prototype is the first step in the whole research picture, visualization, data mining and uplift can become future research topic.

University study connects to industry. My first job after graduation was application developer in Inflight, a well-round Ireland airline service company, the software our team developed won good reputation from customers, aeroplane companies. I take charge of design and implementing a prototype individually, twitter-based airline sentiment analysis. This project includes three components, one is retrieving twitter notification with twitter streaming API and airline keyword, save it to mongoDB, the second is processing data with node.js, the last is visualizing real-time data with angularjs and d3.js. This project reveals some drawbacks, including simple optimism and pessimism word library to make sentimental analysis rather than natural language processing can reduce accuracy , and large volume twitter notification impaired performance.

Afterwards, i was enrolled by Accenture, a global top 500 company in center for innovation, headquarter. I was involved into Aletheia project, categorizing and making reliability rating of electronic documents. This project utilized python, machine-learning approach to analyse authors of document, reference, and summary of texts, in order to judge its reliability and categorization. My part of work concentrate on frontend Chrome plugin. Meanwhile, I was involved into AI-based medical insurance project, using NLP to process medical claims and allowing review on intuitive UI. My part of work is benchmark UI.

Ranging from startup team, local entertainment company to global company, I hope my cross cultural background and passion for technology can be an asset to you.

At present, I work as associate manager in citigroup and take charge of web development. Meanwhile, I focus on web component library development to help work effectively and efficiently, grid and form particularly. At the same time, I work on backend project using egg.js and koa.js. And i adopt python and socketio in a research project.

During leisure time i learn machine learning online in Wanmen inversity, and improve my programming ability with lintcode.com to sliver level.

As to the area of machine learning, I am aware of that many algorithms are hard to understand, which needs around four to five years of learning and practice. I also understand lots of clever competitors and they have made much endeavor, patience and persistence. But if i did not start I would lose it. So I determined to apply for this programme to reach my goal. I request you to give my application to admission and financial support favourable consideration.

1. **Topic: Text analysis:**

**Problem**:Based on text analysis and user preference, adapt rule-based engine and machine learning to manage mobile messages. It includes 1) judge if message is fake, dependable based on user comments, author, and summary(academic words library). 2)users have its own preference and messages can be categorized with preference score.3)analyse image in the text.(if possible)4) users’ habit are changeable, this system can tolerant mutable user habit.

Compare rule-based approach and machine learning text analysis engine, and uplift message.

**Expectation**:a mobile app, which is able to retrieve email, text message, mobile news, categorize messages and filter out dependable message.

1. **Topic: Image analysis**

Based on food and dish photo, nutrient ratio in a dish can be obtained. Based on user’ requirement, the project can score on dishes and make recommendation

The research will focus on recognizing low resolution image. After food is fried or streamed, the system still can be identified. Also the color of food can be used to judge if the food has nutrition. Meanwhile, user’s preference is changeable, this system will change according to mutable user habits.