

Motivation Letter

of Jiafeng Liu (*ETH Zürich Master Statistics Applicant*)

This is Jiafeng Liu, and in this motivation letter, I would like to show my interests in statistics and *ETH Zürich* from this three questions, Why Statistics? Why *ETH Zürich*? And what's my advantage for this programme (Master Statistics)?

Why Statistics?#1: Before entering university, I had a lot of interests on studying Mathematics or Computer Science. But I chose statistics as my major. Gradually, I found this is a subject which combined mathematics, statistics and computer science and began have passion on statistics. I enjoy the process of analysing data, using and learning statistical models to find out the true relationship between data. I am impressed by the brilliant model like *LARS*, *MCMC* and I tried myself to follow the master's thought. I was also a Research Assistant of **Department of Economics Harvard University** and responded for charging the database, data cleaning and data visualization. From this experience, I learned deeper of data analysing, how do the data generated? How to get the features of data and how to fit the model.

What's my advantage for this programme?#2: It is a trend that as a statistician, you must master computer science (C, Python, R) and knowledge about mathematics (mathematics analysis, algebra). This is my big advantage. In my past three years academic life, I attended many mathematics and computer science courses to pave way for my statistics study. I did many statistical projects and learned some skills and cutting-edge technology.¹ With strong background, great passion and rich research experience, I don't doubt my ability to stay calm and overcome all the challenges along the way to being an excellent statistician.

Why *ETH Zürich*?#3: In fact, I knew *ETH Zürich* from one useful and great R package *parallel*. In a course project using *Best Subset Regression* and *Cross Validation*, in order to enhance computing efficiency, I optimized the algorithm in terms of statistics and mathematics, and also used parallel computing in R (actually this depended on the R package *parallel*). On the R-manuals page, I found some link about *ETH Zürich* and Seminar for Statistics. From then on I came to know *ETH Zürich* and the master programme Master Statistics. I fit for the programme very much and I realized there must be my next destination. I found one field to be particularly compelling: machine learning and computational statistics. The programme provided in *ETH Zürich* is actually emphasised in this interdisciplinary field that ties computer science and statistics. I have read the curriculum page (Basic and Data Science track), and impressed by the lectures provided by *ETH Zürich*. For instance, Applied Statistical Regression, which I have attended one similar course in *Uppsala University* Sweden and got a lot of interests. I also studied an entry level machine learning course *Data mining* in my home university, where I learned some important and classical machine learning algorithm such as *LARS*, *Lasso*, *Ridge*, *Random Forest* and so on. I also applied these methods into real world to solve some issues in my course project. This course stimulated my interests in machine learning and I hope that I could go on my study in field in *ETH Zürich*. There is another course *Applied Time Series*, and I have attended *Time Series Analysis* in Sweden and learned some useful time series models (ARIMA, GARCH and so on). I was aware of the power of time series in macroeconomics and financial market from my course project. Another course Computational Statistics also attracts me. I hope that I could learn more knowledge about computational statistics and bayesian statistics in this course. All these above stimulate me to go on my master study in *ETH Zürich*.

¹more details about my research experiences find here <http://jiafengliu.me/>