Zhang, Zijian

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Dear Prof. Avishek Anand,

as a master student in Informatik of Leibniz Universität Hannover, I read your posting of opening doctor position on the web site of Lower Saxony Learning Lab with interest. My experience and interests align well with the qualifications you are seeking. Especially the research experiences on machine learning and data science makes me suitable for the requirement of position. Also the experience of being a Hiwi Student, finishing my master thesis as well as the following research in the same territory of my master thesis solidified my ability. This experience also allows me communicating in English, working independently as well as being a good team player. Therefore it is certain that I would be a valuable addition to the L3S Research Center.

With extensive experience of attending to competitions since my junior high school, I am adept in computer programming, algorithm design and analysis. Taking part in the contest named National Olympics of Information in Provinces (NOIP) in my senior high school, I was trained to be able to analyze real world problems and solve them with help of computer algorithms. During my Bachelor years, participation to the contest named National Undergraduate Students Electronic Design Contest Information Security Invitational enriched me my the knowledge on system as well as kernel programming of GNU/Linux. Moreover, according to the education background in bachelor period, I have also qualified knowledge on linear algebra, stochastic process, signal analysis and processing, which enhances the mathematical ability of mine. As for the time being a master student in LUH, I decided to follow the trend and payed more attention on the data science as well as machine learning . The acceptable scores of data mining, data stream analysis and so on certificate my perspiration. During the same time, the Hiwi job in Institut Mess- und Reglung and L3S solidifies my ability of programming and doing research. Recently the finishing of my master thesis in L3S Research Center makes me learn more on machine learning, data science and fundamental knowledge on deep learning and ignited my interest on scientific research and on the topic of machine learning.

It is a trend that the machine learning and deep learning algorithms are broadly leveraged in many territories, such as, recommendation and decision making support in commercial systems, network analysis in the social network and physical networks, video and audio processing so on and so forth. No need to mention the high-speed

development of AI system such as autonomous vehicle and robotics. In one hand the bright future of machine learning technique makes me eager to learn more in this territory and study the algorithms as well as their application scenarios. In the other hand the unpleasant fact of inefficient training of many, some of which are even well known, machine learning models calls for further optimization and up-scaling. That is why I chose the finding of scalable approach of learning word representation as my master thesis, as both a summarization of my four years of leaning and my initial trial of making impact for the modern machine learning community. Furthermore, many deep learning approaches are right now still a black box to the model user, whether and how the modification of network structure, adjustment of hyper-parameters affect the training result of approach is even unknown and requires inspection and exploration. Therefore if I may have the honor to work as a doctoral student in L3S Research Center, one or all of them could be my central points of research. In the first year I would like to open my eyes to the mathematical foundation needed in analysis and optimization of machine- and deep learning approaches, in the meanwhile to pursue the cutting-edge evolution of them. From the second year on I would like to focus on document and all the approaches presented in order to build my inherent organization. These are preparations for my main work on analysis and optimization of machine- and deep learning approaches. Lastly I would try my best to build my version of interpretation of modern machine learning algorithms based on the grateful works of predecessors.

In addition to my experience and personal qualities, I am extremely enthusiastic about learning new knowledges and digging into research problems. Furthermore the willing of communication as well as cooperation ability of mine can also be characterized, which was learned during my time of Hiwi job and the chairman of Association of Chinese Scholars and Students in Hannover.

Please review my attached résumé for additional details regarding my expertises and contest achievements. Your prompt reply will be highly appreciated.

Thank you for your time and consideration.

Best Regards,
Zhang, Zijian