Letter of Motivation

My first lecture on Discrete Structures began with 'What does it mean to be a computer engineer?'. I had presumed that the answer might be related to writing powerful programs or software engineering. I was thus pleasantly surprised and delighted to hear the professor's reply 'The ability to solve problems'. This has stuck with me ever since.

I have always tried to observe everything from a logical perspective, be it a natural phenomena, historical events, legislative rules or even poetry. My ardent intrigue towards mathematics and science motivated me to take the highly competitive JEE exam and pursue a major in computer science and engineering at the Indian Institute of Technology Kharagpur.

With time I have come to the belief that logic commensurates with one knowledge, i.e. one's capability to take an informed decision positively correlated with his current knowledge of the world. This belief heralded my fascination for data sciences, which blossomed as I indulged in academic and research projects like estimating the job index of USA, categorizing YouTube comments, observing relay linking in citation networks and the like.

I realised that my research interests are aligned along the lines of social media analysis and social networks along with its applications in the field of natural language processing, machine learning and information retrieval. This realization was firmly cemented after I had attended the 'Artificial Social Intelligence' workshop at Microsoft Research, India in summer of 2017.

The workshop featured wonderful lectures spanning several multidimensional topics pertaining to social intelligence, like computational pragmatics and sociolinguistics, building conversational agents, multilingualism, code-borrowing, authorship attribution, hate speech detection and ethnography. These talks presented by the experts in their respective domains, provided a wonderful insight to the challenges faced by computer scientists in terms of understanding social interactions using NLP or ML.

I was presented with a wonderful opportunity to be involved in the project, 'Utilising social media for coordinating disaster relief operations' under the guidance of Dr Saptarshi Ghosh of IIT Kharagpur. My work aimed at developing unsupervised natural language processing techniques to extract resources and other information from situational needs and avail tweets and perform their subsequent matching.

The workshop had asserted my research interests in the fields of natural language processing and information retrieval. It has motivated me to collaborate on creating a knowledge graph to answer natural language queries of the ACL Anthology Network. I also took up a course on Social Computing where I not only learnt about the

pioneering works of researchers in the field of social networks, but how standard NLP and ML techniques prove to be insufficient for the data generated on social platforms.

An interesting research topic that has arisen recently involves fairness, accountability and transparency in machine learning algorithms, There have been extensive research on accounting for bias in data, biases in network structural properties due to different sampling strategies to biases in Twitter recommendation system, search results and trending topics due to misrepresentation of minorities. These results are crucial because they are not actively influenced by Twitter and their presence needs to be thus acknowledged. This forms another core component of my research interests.

My motivation to pursue a career in research in computer science has enthused me to try and utilise the opportunities available in my undergraduate studies to the fullest. I can ascertain the fact that if provided with a vital research opportunity in one of the leading research groups will not only broaden my perception of research but also invigorate my zeal towards pursuing a career in the field of NLP .

It shall also help me take an informed decision in the choice of my graduate studies and take a step forward towards my long-term goal on a career in academics. In this scenario, I believe that my motivation to do research and my strong background knowledge due to my courses and research projects will hold me in good stead. Thus I believe I am a suitable candidate for Summer@EPFL 2018.