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Faculty Search Committee,
Department of Xyz
xyz, pqr

Dear Members of Search Committee:

I am writing to apply for Tenure-Track Assistant Professor position in the area of X, Y and Z announced on the webpage. I am currently working towards my PhD in Purdue University, West Lafayette. My research spanned over the fields of representation learning (machine learning), deep learning, natural language processing, data mining and bioinformatics and various state-of-art problems such as representation learning of textual and network units, total recall, active learning with data imbalance and network mining and analysis. My previous teaching experience as a Lecturer of Computer Science for three years along with my research in various contemporaneous domains have provided me with the unique background necessary to successfully assume the position that you described.

A significant part of my PhD research focuses on learning to understand the semantics of natural language text (e.g., words, sentences, paragraph) and the nodes and edges in the network. The number of applications targeting to use the semantic knowledge learned from these domains is growing. However, tools and techniques developed so far are not as sufficient to understand complex semantics and higher-order reasoning. More sophisticated methods which can capture essential aspects of both forms of the data and combine the knowledge from each type of the data are of enormous importance. Apart from the above works, I have also worked on mining information from a set of networks (graph Mining), finding significant subnetwork from a single large network (motif finding) and performing name disambiguation in anonymous author network. I show that the algorithm I developed for graph mining can be applied to find essential structures when applied to the interfacial region of a set of oligomeric proteins and the algorithm for motif finding algorithm can be used to classify apps from google app store as malignant or benign.

Though my PhD research is focused on a specific problem, I have several other research works that span across the domain of data mining, text mining, security, bioinformatics and network mining and analysis. For example, in work with iControlESI, I have contributed to design a predictive analytics system for technology-assisted review (text mining) which resulted in a research paper and two patent application. During my internship at QCRI, Qatar, I have worked on several aspects of Rayyan (https://rayyan.qcri.org/, an abstract screening platform for biomedical domain) including full scale evaluation of the prediction module for included/excluded module inside Rayyan, proposing a novel model for the prediction based on multiple learners and word2vec features, and improving the deduplication of citations inside Rayyan. In another work with NEC Labs America, my colleagues and I have added a semantic component to the existing heterogeneous log analysis framework which facilitates root-cause analysis for system failure. NEC labs is working on filing a patent for the work. I am also currently collaborating with eBay in a text summarization project and with CareerBuilder for career path trajectory modeling. A short discussion of various projects that I worked on and the corresponding research papers and codes are available from my webpage: https://tksaha.github.io/.

As a Lecturer for three years in UITS (`https://www.uits.edu.bd/`) and Jagannath University (`http://jnu.ac.bd/`), Dhaka, Bangladesh, I lectured on various undergrad classes such as Structured Programming Language (C), Data Structures and Algorithm in Computer Science and Math Department. In those classes, I had the opportunity to exercise my teaching philosophy of combining a solid theoretical foundation with practical hands-on experience: **learn, (re) build, break**. I also facilitated the team effort through dividing the students into groups for course projects and stimulated sharing by designing projects in such a way that the projects become related to course materials. As part of my teaching duties, I was also responsible for preparing assignments, designing course projects and quizzes for the mid-term and final exam. In each of these aspects, I made my best effort so that students can develop critical thinking skills and can solve real-life problems by applying the tools and techniques learned from the course. In an additional effort to prepare for job market, my colleagues and I developed a platform where students can practice competitive coding skills.

As a Professor, I also wish to encourage the diversity in the classroom. I believe all students should have the opportunity to see problems both within and without of their intellectual comfort zone, and irrespective of their race, and gender. I plan to make the course materials accessible to everyone, course projects evenly distributed and include myself as a project partner in hope for attracting and retaining students who traditionally turn away from the field. While on campus, I served in different roles in various organizations. I served as a treasurer of the Asian Student Union, a member of School of Science Graduate Council, a President of Bangladesh Student Association, and as a peer mentor for incoming graduate students. From my experience in working with different student groups (both the undergrad and graduate), I saw many indications of the powers of cooperative learning and encouraging diversity. I believe diversity strengthens the classroom community beyond everybody's comfort zone by breaking stereotypes.

I closely looked at your program from your website. I believe that it would provide me the ideal opportunity to launch my academic career. It has a very good mix of undergraduate and graduate students, an excellent Computer Science research program and a diverse group of highly qualified faculty members in CS and other related disciplines. It would provide me the perfect setup to continue my research and teaching endeavors.

I would enjoy discussing this position with you in the weeks to come. In the meantime, I am enclosing my Curriculum Vitae, teaching philosophy, and research statements. The names of three references are available from my CV and the letters of recommendations from them will arrive in due time. If you require any additional materials or information, I am happy to supply it. Thank you very much for your consideration.

Yours Sincerely,

Tanay Kumar Saha