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Hello,

My name is Shiladitya Dutta and I'm hoping to become an intern at SpaceX. The primary reason why I'm drawn to SpaceX is because of SpaceX's frontrunner status in the world of space transportation services. From the first launch of the Falcon Heavy, to the success of the Inspiration4 mission, or the preparations for the full stack launch of SN20, I've consistently been awestruck by SpaceX's breathtaking rate of innovation. This isn't even to mention endeavours such as Starlink which would revolutionize satellite based internet or the technical achievements of creating a full flow staged combustion cycle engine with Raptor. Ultimately, SpaceX is a company that is consistently breaking boundaries in the world of aerospace engineering and pushing ahead in a traditionally government-centric industry. This disruptive take on progress is one I admire and, along with my passion for software engineering and my research experience, is why I would make an excellent candidate for this position.

Over the past few years, I have worked on a variety of projects that have allowed me to accrue a wealth of software engineering experience. My first large-scale endeavour was when I developed an ML pipeline to vocally predict the onset of Parkinson's, later expanding to diagnose a host of other diseases. Afterwards, I developed a question-answering search engine which automatically parsed online information via natural-language processing and analyzed it with semantic symbolic reasoning within a graph database. Finally, I was the lead for the PORTAL-DOORS Project (PDP) cyberinfrastructure, a distributed lexical-semantic server network for data-processing applications and registries. Highlights from these experiences include:
- First-author paper at IEEE International Conference on eScience
- First-author paper at IEEE International Conference on Semantic Computing (ICSC)
- Co-author paper at IEEE International Conference on Electronics, Computer, and AI (ECAI)
- Co-author papers at 82nd & 83rd Assoc. for Info. Science & Technology (ASIS&T) Conferences
- Awarded Undergraduate Summer Research Fellowship from Berkeley URAP for work at UCSF
- Knowledge of Java, Python, C++, C, MATLAB, SQL, and Semantic Web (RDF/OWL/SPARQL)
- Experience with CUDA, Caffe, Scikit, Keras, TensorFlow, NLTK, and OpenCV
- Past research in NLP, Deep Learning, Bioinformatics, Symbolic AI, and Knowledge Engineering

Currently, I'm working as a Research Apprentice at the UCSF Weill Institute at Neuroscience where I just received an award for an undergraduate fellowship. I'm developing methodologies to compress/accelerate Convolutional NNs and quantify compression stability for computer vision applications. Specifically, I'm working on dimensionality reduction of convolutional matrices for low-rank networks along with alternate editing schemas via matrix decomposition techniques for targeted network alteration.

During my journey as an engineer, I've been enthralled by not only SpaceX's achievements but SpaceX's long term goals, especially its vision to establish a colony on Mars. This company embodies a vision to both make space exploration and mass-scale space colonization a reality for the masses. By

creating leaps in innovation that would be unimaginable just a decade or two earlier, SpaceX has galvanized the space industry for the better and is recapturing the drive towards the stars that was first ignited during the space race. Ultimately, it is undeniable that the development of commercially-viable reusable rockets has already put SpaceX in the history books and with Starship there is yet more to come. My dream is to help push this revolution forward, a dream I hope to begin achieving with this internship. Thank You.

With Regards,
Shiladitya Dutta