Dear Selection Committee,

I am a Doctoral student at the School of Computing, University of Utah, advised by Prof. Vivek Srikumar. My current research interests are Machine Learning and Natural Language Processing, particularly problems incorporating both fields. I am also exploring topics in fair Machine Learning under the guidance of Prof. Suresh Venkatasubramanian. See, [1] for more details on my research experience. ALPS 2021 would allow me to interact and learn from excellent academics and researchers. The focused nature of learning at the ALPS 2021 allows me to dig deeper with the understanding of my topic of interest.

ALPS 2021 will also provide an excellent opportunity to showcase my research and talk about it with expert people. This will also provide a brilliant opportunity to get feedback on my current research work from people of diverse backgrounds who have never seen it before, which may provide me with new insight. ALPS 2021 also opens an avenue for collaboration with others working on similar problems. It will provide me with an opportunity to network with like-minded people, build needed connections for future internships and jobs after Ph.D.

I am always looking for excellent opportunities where I can contribute to research with significant practical impacts. My long-term career objective is to be a leading contributor in academic and industrial research, and to mentor others like me, attending ALPS 2021 brings me a step closer to my goals. I believe that my research experience, personal initiative, and passion towards research give my candidature a strong impetus.

Yours Sincerely
Vivek Gupta
Graduate Student, School of Computing
University of Utah
https://vgupta123.github.io

[1] Research Experience: My research involves making automatic decisions robust to spurious artifacts, fair, interpretable, and transparent in practice. With rapid progress in deep learning, many AI models are being used for sensitive decision making (e.g., hiring, admission). Thus, it's become essential to ensure that deployed models are fair, interpretable, and transparent. In this direction, I worked on a new group fairness measure, "*equalized recourse*", which aims at providing equal opportunity (recourse) to individuals of two groups (demographically defined) to overcome adverse outcomes. This measure ensures that the ability to change circumstances (improved credentials) is not limited to only those with access to expensive resources (advantage group). We showed that one can build models that can make accurate predictions while still ensuring that the negative outcome does not prejudice different groups disproportionately. I also recently worked on the unequal compounding effect of sequential decisions in automated decision making.

Furthermore, I am developing several techniques to make the NLP model robust to annotation artifacts. We are introducing a new task, "*InfoTabS: Inference on Tables as Semi-Structured data.*" For this, we created a large crowd-sourced Natural Language Inference (NLI) dataset with premises as Wikipedia-infobox tables. InfoTabS incorporates several diverse kinds of reasoning, which are typically not seen in other NLI tasks. SoTA models, e.g., RoBERTa, do not perform well on InfoTabS since these models do not explicitly account for such reasonings. I recently worked on another project which evaluates NLP models for consistency of their predictions in addition to correct outputs through first order logic. I also recently interned at IBM TJ Watson Research Center and worked on "*Generating Contrastive Explanation for NLP tasks.*" To achieve this, we proposed an edit based controlled paraphrase model with latent topical interpretable attributes. This work was inline toward the broader goal of generating interpretable explanations for NLP models.