Research Statement

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I am a second year PhD student in Electrical and Computer Engineering Department, at JHU. My current research revolves around using computer vision models to perform face anti-spoofing. My long term goal is to **build large scale data-intensive analytics/vision systems** that are **robust for wide-audience deployment**.

Over my 4+ years experience of working as a computer vision and deep learning researcher, I have worked on a variety of projects ranging from heterogeneity aware metric learning (as part of undergraduate thesis and also accepted paper at BTAS, 2018), to anomaly detection based face anti-spoofing (paper accepted in first year at JHU at IJCB, 2020), to generating faces from voice samples using generative adversarial networks (project completed as part of MLSP course, excelled with A+ grade). While building automated face recognition based greeting system for golf carts for Yamaha Research, Japan, or while presenting my research at IJCB last year (for which I got the Audience Choice Best Presentation Award), I have also taken core ML/CV courses (excelled with grade A or higher) to build a strong foundation of basics.

My research motto is to ***explore*** how to best ***implement*** and ***deploy*** high performance computing systems in real world applications and reciprocate my learnings to others. In an age where Peta/Terra-byte (e.g., [1] or [2]) is the new norm of data scale in large scientific discoveries, I believe we as an engineering community could benefit by improving **management and analysis techniques for big data**.

I have great interest in computer vision and its applications to build robust systems for big data. While systems-based research has made significant leaps in big data, I believe, as a CV researcher, I can contribute towards improving these systems further as well as building better systems.

The idea of collaborating on such big code bases in a conducive environment, understanding the systems side of high performance clusters and realizing its correlations with direct societal implications, really **excites me**. I am thus looking forward to acquire the skills required to be a part of such large-scale projects. Building expertise in both **vision and systems** would make me a good fit for future career prospects.

Along with my motivation to work in such environments, the current skill set in the form of: proficiency in writing code(github), prior research experience(s)(research), technical writing capability(papers) and excellent academic record(highlights), gives me a head start to pursue research in vision based systems.

I believe my proficiency in vision based concepts, programming skills, ability to bring the best in everyone on a team (technically and holistically), along with my zeal to learn, will enable me to contribute more to this research area.

My research interests align with the research at your lab and therefore, I request you to give me the opportunity to pursue my research under your supervision after evaluating my consistent academic and research performance.