DLRL Summer School Application Questions

Technical Background

The Deep Learning and Reinforcement Learning Summer Schools are aimed at students, postdocs, and researchers in quantitative disciplines, who may have some exposure to machine learning but little to no exposure to deep learning and reinforcement learning. It assumes a Bachelor's degree in a computational discipline (e.g. computer science/engineering, mathematics and statistics) and familiarity with a scripting language for scientific programming (e.g. Python, Matlab or R).

Please provide a short statement (up to 150 words) which describes how you meet the technical background criteria of the program.

When DLRLSS starts I will be a rising senior at the University of South Florida, undergoing my final year to obtain a B.S. in Computer Science with a minor in Mathematics. Throughout my undergraduate studies I've been in a variety of research labs including: Biophysics, Image Processing, Machine Learning, and Human-Computer Interaction. These experiences along with my coursework have given me foundational skills in languages such as Bash, C/C++, MATLAB, Python, and SQL and with frameworks such as Tensorflow, Pytorch, Scikit-Learn, and MATLAB's Statistics/Machine Learning Toolbox, making me a suitable candidate moving into Deep Learning and Reinforcement Learning space. Although I've worked with some Deep Learning in a couple of my projects (like mosquito species identification and DCGANs on brain tumor data), my knowledge is still shallow, and I believe that DLRLSS can take my abilities to the next level through a deeper understanding of fundamental topics.

List your research area(s) (3-5 keywords):

Hierarchical-Reinforcement Learning and Applied ML

Name your top 3 research achievements (e.g. reference to a published paper, 1 sentence project description):

1. Deep Learning System for Automatic Tagging and Uploading of Mosquito Genus, Species and Anatomy from Smart-phone Images (Provisional Patent) - We created a mobile application to run a server-side CNN model that identifies the species and genus of mosquito images taken by the phone.
2. Awad, G., Butt, A. A., Fiscus, J., et. al. (2017). Trecvid 2017: Evaluating ad-hoc and instance video search, events detection, video captioning and hyperlinking. *Proceedings of TRECVID 2017*. doi:10.na
3. McClinton, W., Caprio, D., Laesker, D. (2019). P300-Based 3D Brain Painting in Virtual Reality. (Submitted to Late Breaking Work CHI 2019) – We created the first ever Brain Painting in a 3D virtual reality environment.

Please provide a web link to your personal academic web page (if you have one)

https://wmcclinton.github.io/

Optional: Provide any additional remarks for the Selection Committee.

I've decide that my goal is to obtain a PhD in Computer Science focusing on Artificial Intelligence, specifically the use of Deep Learning techniques to solve Hierarchical Reinforcement Learning problems and throughout my time at USF I've tried to make my way into the RL field. For example, I've connected with Dr. George Konidaris at Brown University and he is currently advising me in an independent study for elective credit. I will join his lab this summer 2019 for a Research Experience for Undergraduates on Hierarchical Reinforcement Learning, specifically in option construction and temporal abstractions.

As I mentioned before, this will be my senior summer before I apply to a graduate program and I believe that attending DLRLSS will give me the opportunity to interact with graduate students and senior researchers in the field, whom may be potential peers and mentors in the near future. Starting to learn these foundational skills of DL and RL early on can help bootstrap my goal to enter this rapidly growing field of research.