

Kirin Patel
AE 457
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Grant Proposal

Link <https://aws.amazon.com/aws-ml-research-awards/>

Summary

The AWS Machine Learning Research Awards (MLRA) assists faculty, PhD candidates, and graduate students with research to advance the frontiers of machine learning (ML) and its application across a wide range of problems---from finding new therapies for cancer to solving climate change and exploring outer space. MLRA provides eligible researchers and university programs cash awards and AWS Promotional Credits so that they can do more faster using the most advanced compute, analytics, and machine learning tools available in the cloud.

Machine learning is still in its evolutionary stage with much of the progress coming from research on innovative algorithms, better data collection and preparation methods, and newer techniques such as reinforcement learning. Until recently, lack of access to the latest compute, storage, and networking has been a blocker for ML research. MLRA solves this problem by offering unrestricted cash awards and access to cutting-edge infrastructure and managed services through AWS Promotional Credits for selected applicants. MLRA also offers award recipients opportunities to participate in AWS events and receive live one-on-one training sessions with AWS data scientists and engineers.

Area of Application General Machine Learning Research

Duration Unspecified, project to project basis

Number of Applicants That Will be Accepted Unspecified, no minimum or maximum

Funding Unspecified monetary amount (provide own amount), AWS credits (provide own amount), training, and research assistance

[AWS Machine Learning Research Awards (MLRA) Letter of Intent, 12/4/19]

Dear MLRA Team:

After completing my undergraduate degree at Capitol Technology University, I intend on pursuing additional research on my senior design project which focused on feature recognition and detection of meteors within spectrographs. I am seeking additional funding, \$10,000, or AWS credits equalling \$10,000 and research assistance to continue developing the capabilities of my machine learning model to increase accuracy.

I will continue my education at Capitol Technology University under the direction of Dr. Antunes, the head of our Astronomical Engineering department. While at Capitol Technology University, my focus will be on advancing my knowledge on machine learning and the application of machine learning on space based projects such as spectrograph analysis.

By obtaining funds and additional research assistance from the AWS MLRA, my current machine learning model will be able to continue training on high efficiency machines, which will decrease time spent training, and I will be able to continue investigating methods of improving model accuracy. This will allow the meteor detection model to be improved further. Additionally, the techniques used to process spectrographs can be applied to other space based applications.

Currently, all machine learning model development has been done for the purpose of my undergraduate senior design class. By obtaining funding, research and development can continue without impeding my graduate academic career as I will be able to focus on my academic career and the development of the meteor detection model efficiently and effectively.

The model has roughly 75% accuracy and can be viewed on GitHub or within this blog post. The blog post details how to obtain data and use the trained model to identify meteors within data, I encourage you to take a look at it and try it out!

A full proposal can be completed and submitted upon your request.

Sincerely,
Kirin Patel

Letter has been written with the assumption that I have completed senior design and have graduated from Capitol Technology University as the grant is only offered to graduate and PhD candidates.