Abstract Submitted
for the NES21 Meeting of
The American Physical Society

**Computer Vision for Mini-filament Eruption Detection on the Solar Surface** THOMAS CHEN, The Academy for Mathematics, Science, and Engineering (AMSE) — Small-scale filament eruptions on the sun have previously been documented in the scientific literature. However, robust techniques to identify and semantically segment them in imagery data have not been developed. In this talk, we outline preliminary work in using deep learning algorithms, and convolutional neural networks particularly, to locate mini-filament eruptions. We train a ResNet50 model on H-alpha data, using cross-entropy loss as the criterion for optimization and an Adam optimizer with a learning rate of 0.01. The primary long-term objective of this work is to find correlations between the occurrences of these eruptions and coronal jets. Automated computer vision methods provide more efficient mechanisms to study long term trends and correlations that would not be possible with conventional methods.

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Date submitted: 06 Apr 2021 Electronic form version 1.4