

**Sookyung Kim**  
**Supported Projects: ESGF, CASC postdoc**

**Quarterly Report for Jan 1, 2017 – March 31, 2017**

**Quarter Accomplishments:**

- **Machine Learning**
  - Install Tensorflow in aims-gpu and aims-4
  - Develop python code to automatize climate data extraction of hurricane cases based on NOAA historical hurricane report
  - Design and Develop Convolutional Neural Network to classify different types of hurricane
  - Implement Tensorflow for the dataset of hurricane to solve classification problem
  - Participating deep learning reading group lead by Barry Chen
  - Took online course “CS231n: Convolutional Neural Networks for Visual Recognition” from Stanford Open-course
- **LDRD proposal**
  - Wrote white paper on deep learning application of extreme climate event detection
  - Present topic on Computational Innovation Symposia
- **External collaboration**
  - Wrapping up Monte-Carlo python code for stacking fault energy calculation for stainless steel material for Hydrogen Storage Group in Sandia National Laboratory
  - Wrapping up Ph.D thesis and proceed paper work for official thesis publication
- **Conference Presentations**
  - **Sookyung Kim**, Mar 22-24, 2017: Massive Scale Deep Learning for Predicting Extreme Climate Events: Uncertainty Quantification and Data Driven Modeling (Workshop)

**Next Quarter’s Roadmap**

- Design CNN for localization based on regression using Tensorflow
- Collect Global Scaled Hurricane dataset (Not previous bounding box approach), then apply deep learning for classification and localization problem
- Install GPU enabled Tensorflow, Tensorboard in aims-gpu

**Resources Required to Achieve Goals**

- Nothing special for now