***Machine Learning in Materials Science: An Introduction through Python***

*Instructors: Rama Vasudevan (CNMS) and Vinit Sharma (JICS)*

**August 14th, 2019**

**Agenda**

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| **Room: C-156  SNS [Building 8600] ORNL** | |
| 8:00-9:00 AM  (All) | Setup and installation, coffee and introductions from all participants |
| 9:00-9:30 AM    (Rama) | Introduction to machine learning in python    Includes basic introduction to numpy, scipy, matplotlib, and the python scientific software stack |
| 9:30-10:45    (Rama) | Basic signal and image processing methods using numpy, scipy and scikit-image |
| 10:45-11:00 AM | Coffee Break |
| 11:00-12:00PM    (Huan Tran) | Polymer Genome: An Informatics Platform for Polymer Design |
| 12:00-1:00 PM | Lunch on your own |
| 1:00-2:00 PM    (Vinit Sharma) | 1. Traditional classification and regression methods 2. Comparison of ML models for classification and regression |
| 2:00-3:00 PM    (Kamal) | Kamal Choudhary – Applications of ML to Materials theory |
| 3:00-3:15 PM | Break |
| 3:15-4:00 PM    (Rama) | Unmixing Methods: overview and applications to spectral imaging and diffraction |
| 4:00-4:30 PM    (Maxim) | Deep Learning Methods: An overview |
| 4:30PM | Wrap Up |

**\*Those in RED will have a Jupyter notebook component.**