

**2011 NASA CONFERENCE ON INTELLIGENT DATA UNDERSTANDING**  
Mountain View, CA | October 19-21, 2011

**Wednesday, Oct 19**

12:30 Registration

1:30 **Invited Talk: Ontology, Verb Meaning and Semantic Roles**

**Fernando Gomez, University of Central Florida**

2:00 **Invited Talk: Semantic Annotation of Complex Text Structures in Problem Reports**

**Jane Malin, NASA Johnson Space Center**

2:30 Coffee Break

3:00 **Tutorial: Introduction to Machine Learning**

**Arindam Banerjee, University of Minnesota**

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**Thursday, Oct 20**

8:00 Registration

8:30 **Opening Remarks**

**Ashok Srivastava, NASA Ames Research Center**

8:45 **Keynote Talk: The Data Challenge in Climate Science**

**Gavin Schmidt, NASA Goddard Institute for Space Studies**

9:45 Coffee Break

10:15 **Invited Talk: Improving Air Traffic Operations through Data Analysis and Modeling**

**Hamsa Balakrishnan, Massachusetts Institute of Technology**

**Session 1 - Chair: Arindam Banerjee**

11:00 A Sustainable Approach for Demand Prediction in Smart Grids using a Distributed Local Asynchronous Algorithm

Rajarshi Mallik, Hillol Kargupta

11:20 P-MATCH and QUBIT - Methods for Extracting Critical Information from Free Text Data for Systems Health Management

Anne Kao, Stephen Poteet, David Augustine

11:40 Data Guided Discovery of Dynamic Climate Dipoles

Jaya Kawale, Stefan Liess, Arjun Kumar, Michael Steinbach, Auroop Ganguly, Nagiza Samatova, Fred Semazzi, Peter Snyder, Vipin Kumar

12:00 Lunch + **Lunch Keynote: Lessons Learned in Data Analysis and Predictive Modeling for Ads Quality**

**Sugato Basu, Google Research**

**Session 2 - Chair: Kiri Wagstaff**

1:30 Towards an Automated Classification of Transient Events in Synoptic Sky Surveys

S. George Djorgovski, Ciro Donalek, Ashish Mahabal, Baback Moghaddam, Mike Turmon, Matthew Graham, Andrew Drake, Nihar Sharma, Yutong Chen

1:50 Pseudo-Label Generation for Multi-Label Text Classification

Mohammad Salim Ahmed, Latifur Khan, Nikunj Oza

2:10 A Stochastic Methodology for Prognostics Under Time-Varying Environmental Future Profiles

Linkan Bian, Nagi Gebraeel

2:30 Coffee Break

3:00 **Panel Discussion: Emerging Issues in Data to Understanding to Knowledge Discovery in Earth, Space, and Aero Sciences**

**Moderator: Nitesh Chawla**

**Panelists: Hamsa Balakrishnan, David Hogg, Vipin Kumar, Gavin Schmidt**

5:00 **Introduction of Poster Presenters**

**Kanishka Bhaduri, NASA Ames Research Center**

5:30 **Poster Session & Reception**

## Friday, Oct 21

8:00 Registration

### 8:30 **Invited Talk: Earth Science Collaborative for Ecological Forecasting**

#### **Session 3 - Chair: Nikunj Oza**

- 9:15 Smoothed Quantile Regression for Statistical Downscaling of Extreme Events in Climate Modeling  
9:35 Time Series Reconstruction via Machine Learning: Revealing Decadal Variability and Intermittency in the North Pacific Sector of a Coupled Climate Model  
9:55 Semi-Supervised Novelty Detection with Adaptive Eigenbases, and Application to Radio Transients

10:15 Coffee Break

#### **Session 4 - Chair: Karsten Steinhaeuser**

- 10:45 Statistical Inference Based on Distances Between Empirical Distributions with Applications to AIRS Level-3 Data  
11:05 A Model-Free Time Series Segmentation Approach for Land Cover Change Detection  
11:25 Sparse Machine Learning Methods for Understanding Large Text Corpora  
11:45 Incorporating Natural Variation into Time Series-Based Land Cover Change Detection

### 12:05 Lunch + **Lunch Keynote: Smart Profiling, Analytics and Reasoning -- An Analytics Approach to Problem Solving**

#### **Session 5 - Chair: Paul Melby**

- 1:30 Anomaly Construction in Climate Data: Issues and Challenges  
1:50 MiTexCube: MicroTextCluster Cube for Online Analysis of Text Cells  
2:10 On the Statistics and Predictability of Go-Arounds  
2:30 Coffee Break

### 3:00 **Invited Talk: A Comprehensive Model of All Astronomical Imaging Ever Taken**

#### **Session 6 - Chair: Michael Way**

- 3:45 Sparse Inverse Gaussian Process Regression with Application to Climate Network Discovery  
4:05 A Novel Time Series Based Approach to Detect Gradual Vegetation Changes in Forests  
4:25 A Machine Learning Approach for Probabilistic Drought Classification

4:45 **Closing Remarks**

### **Ramakrishna Nemani, NASA Ames Research Center**

Zubin Abraham, Pang-Ning Tan, Fan Xin

Dimitris Giannakis, Andrew Majda

David Thompson, Walid Majid, Kiri Wagstaff, Colorado Reed

Dunke Zhou, Tao Shi

Ashish Garg, Lydia Manikonda, Shashank Kumar, Vikrant Krishna, Shyam Boriah, Michael Steinbach, Durga Toshnival, Vipin Kumar, Christopher Potter, Steven Klooster  
Laurent El Ghaoui, Guan-Cheng Li, Viet-An Duong, Vu Pham, Ashok Srivastava, Kanishka Bhaduri

Varun Mithal, Ashish Garg, Ivan Brugere, Shyam Boriah, Vipin Kumar, Michael Steinbach, Christopher Potter, Steven Klooster

### **Ying Chen, IBM Almaden Research Center**

Jaya Kawale, Snigdhanu Chatterjee, Arjun Kumar, Stefan Liess, Michael Steinbach, Vipin Kumar

Duo Zhang, ChengXiang Zhai, Jiawei Han

Maxime Gariel, Kevin Spieser, Emilio Frazzoli

### **David Hogg, New York University**

Kamalika Das, Ashok Srivastava

Yashu Chamber, Ashish Garg, Varun Mithal, Ivan Brugere, Vipin Kumar, Michael Lau, Michael Steinbach, Christopher Potter, Steven Klooster, Vikrant Krishna, Shyam Boriah, Ganeshchandra Mallya, Shivam Tripathi, Rao S. Govindaraju

### **Nitesh Chawla, University of Notre Dame**