

Welcome to...

Statistical Challenges in Modern Astronomy VI



Image Credit: NASA, ESA

June 6 to 10, 2016 ♦ Carnegie Mellon University

A Little History...

The first **Statistical Challenges in Modern Astronomy** conference held in August 1991 at Penn State University, organized by **G. Jogesh Babu** and **Eric Feigelson**



SCMA II thru **SCMA V** held at Penn State every five years thereafter

What has remained...

- Deep involvement of both Astronomy/Cosmology and Statistics/Machine Learning in organization
- Focus on support for young researchers
- Effort to bring latest methods to bear on challenging astronomical data analysis problems
- Effort to be broad in scope, in hopes of cross-fertilization of ideas

SCMA VI Scientific Organizing Committee

- **Jessi Cisewski**, Yale University
- **Andy Connolly**, University of Washington
- **Eric Ford**, Penn State University
- **Christopher Genovese**, Carnegie Mellon University
- **Tom Lored**, Cornell University
- **Jeffrey Newman**, University of Pittsburgh
- **David Ruppert**, Cornell University
- **David van Dyk**, Imperial College
- **Benjamin Wandelt**, IAP, Lagrange Institute

What has evolved...

- Topics covered at SCMA
 - **SCMA I:** Galaxy clustering, luminosity function estimation
 - **SCMA III:** Increased emphasis on cosmology
 - **SCMA V:** Rigorous treatment of high-dimensional “big” data
- Statistical methods presented at SCMA
 - **SCMA I:** “Promise of Bayesian Inference for Astrophysics”
 - **SCMA V:** Entire session on Bayesian applications
- The role of data scientists at SCMA
 - From commentary to deep collaboration

The changing landscape...

- The **International Astrostatistics Association** (IAA), the independent successor of the Astrostatistics Committee of the International Statistical Institute
- The **AAS Working Group on Astroinformatics and Astrostatistics** (WGAA), founded in response to a White Paper submitted to the 2010 Decadal Survey.
- The **American Statistical Association Astrostatistics Interest Group**
- The **LSST Informatics and Statistics Science Collaboration** (ISSC)

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But the need for SCMA remains strong!

Topics at SCMA VI

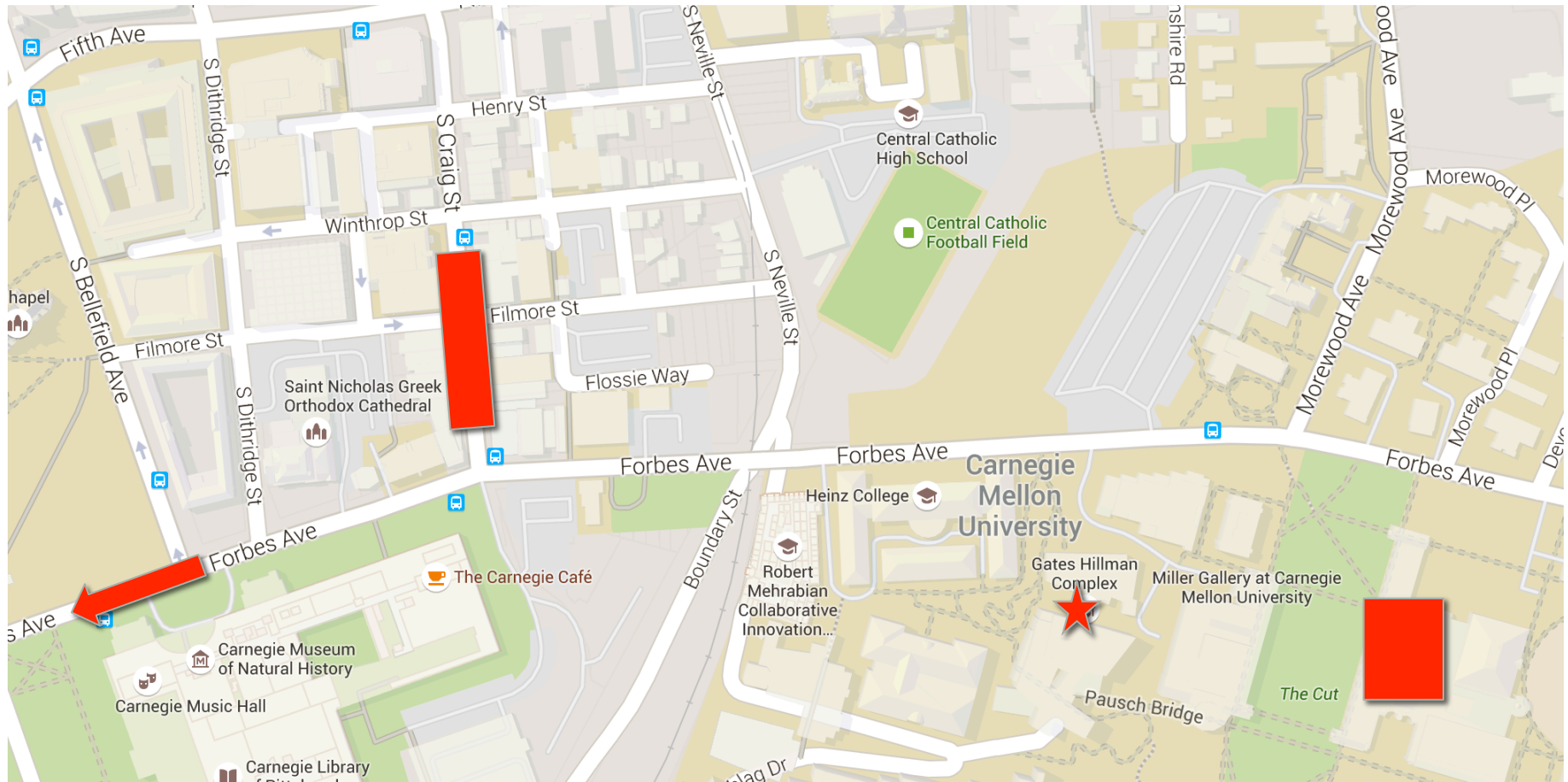
- Exoplanets
- Bayesian Methods, Applications and Tools
- Advanced Data Analysis Methods, e.g., Deep Learning
- LSST-Specific Challenges
- Weak Lensing
- Time Domain Astronomy
- Complex Simulation Models
- Large Scale Structure
- Photo-Z
- Supernovae

...

Some Logistics

- All talks in this room, **Gates 4401**
- **Coffee Breaks** outside Gates 4401
- **Poster Sessions** outside Gates 4401
- **Gates 4405** available for other informal meetings
- **Tazza D'Oro** in Gates for espresso drinks, etc.
- **Dining Options:**
 - On Campus
 - Craig Street
 - Forbes Avenue (University of Pittsburgh)
- **Conference Banquet:** Tuesday evening at Phipps Conservatory

Dining Options



Phipps Conservatory



Thanks!

- Peter Freeman, our uber-organizer
- Monica Galmarini, CMU Conference Services
- Staff in CMU Department of Statistics

Thanks!

Our Generous Funding Sources:

National Science Foundation

LSST Corporation

CMU Department of Statistics

McWilliams Center for Cosmology at CMU

CMU School of Computer Science

American Statistical Association