

# MaxEnt 2007 Program

July 8-13, 2007  
Saratoga Springs NY, USA

## *Sunday July 8, 2007*

8:30 – 5:45 *Registration*

### *Tutorials*

9:30 – 10:45	John Skilling	“Foundations?”
10:45 – 11:00	<i>Break</i>	
11:00 – 12:15	Jose M. Bernardo	“Bayesian Statistics as Applied Probability”
12:15 – 1:45	<i>Lunch</i>	
1:45 – 3:00	Ariel Caticha	“Information and Entropy”
3:00 – 3:15	<i>Break</i>	
3:15 – 4:30	Carlos Rodríguez	“Geometry and Prior Information”
4:30 – 4:45	<i>Break</i>	
4:45 – 6:00	Kevin H. Knuth	“Lattice Theory, Probability Theory and Relevance”

### *Welcome Reception*

6:00 – 8:00 **Welcome Reception** at the Saratoga Hotel

# MaxEnt 2007 Program

July 8-13, 2007

Saratoga Springs NY, USA

## *Monday July 9, 2007*

8:00 – 5:45 *Registration*

8:45 – 9:00 *Welcome*

9:00 – 9:15 *Dean Peter Bloniarz, College of Computing and Information, University at Albany*

***Session: Astronomy and Astrophysics***      ***Chair: Kevin Knuth***

9:15 – 10:10 *Philip Gregory, Invited Speaker*      “Bayesian MCMC Kepler Periodogram Detects 3 New Exoplanet Candidates”

10:15 – 10:40 *Thomas Jefferys*      “Bayesian Analysis of RR Lyrae Distances and Kinematics”

10:45 – 11:15 *Break*

11:15 – 11:40 *Thomas Loredo*      “Twenty-First Century Bayesian Computing for Astrostatistics”

11:45 – 12:10 *Udo von Toussaint*      “Deconvolution using Thin-Plate Splines”

12:15 – 1:45 *Lunch*

***Session: Special Techniques I***      ***Chair: Udo von Toussaint***

1:45 – 2:10 *André Jalobeanu*      “Inverse Covariance Simplification for Efficient Uncertainty Management”

2:15 – 2:40 *Abd-Krim Seghouane*      “Maximum a Posteriori Maximum Entropy Signal Denoising”

2:45 – 3:10 *William M. Briggs*      “On the Non-arbitrary Assignment of Equi-probable Priors”

3:15 – 3:45 *Break*

***Session: Physics I***

***Chair: Rainer Fischer***

3:45 – 4:10 *Ken Hanson*      “Lessons about Likelihood Functions from Nuclear Physics”

4:15 – 4:40 *Robin Morris*      “Just When You Thought It Was All Over - Bayes vs Frequentist in Particle Physics”

# MaxEnt 2007 Program

July 8-13, 2007

Saratoga Springs NY, USA

## *Tuesday July 10, 2007*

8:00 – 5:45 *Registration*

**Session: *Geometry***

**Chair: *Adom Giffin***

8:45 – 9:40 Shun-ichi Amari, *Invited Speaker* “Information Geometry of Maximum Entropy Principle”

9:45 – 10:10 Carlos Rodríguez “Heat, Learning and Prediction”

10:15 – 10:40 John Skilling “Probability and Geometry”

10:45 – 11:15 *Break*

**Session: *Special Techniques II***

**Chair: *Andre Jalobeanu***

11:15 – 11:40 Tomislav Jasa “Annealing and Nested Sampling”

11:45 – 12:10 Richard Culver “Application of the Maximum Entropy Method to Estimating Parameter pdfs for Sonar Signal Processing”

12:15 – 1:45 *Lunch*

**Session: *Physics II***

**Chair: *Ariel Caticha***

1:45 – 2:40 Philip Goyal, *Invited Speaker* “An Information-Theoretic Approach to Quantum Mechanics”

2:45 – 3:10 Ariel Caticha “From Information Geometry to Newtonian Dynamics”

3:15 – 3:40 Pete Martin “Gravity from a Probabilistic Point of View”

3:45 – 4:15 *Break*

**Session: *Special Techniques III***

**Chair: *Deniz Genççağ***

4:15 – 4:40 Timothy Sears “From Maxent to Machine Learning and Back”

4:45 – 5:10 Julian Center “Regression for Proportion Data”

**Poster Session**

6:00 – 8:00 **Poster Session** to be held at the Saratoga Hotel

# MaxEnt 2007 Program

July 8-13, 2007

Saratoga Springs NY, USA

## Wednesday July 11, 2007

8:00 – 5:45 *Registration*

**Session: Learning**

**Chair: Carlos Rodríguez**

8:45 – 9:40 Tony Bell, *Invited Speaker* “Towards a Theory of Learning and Levels in Biology”

9:45 – 10:10 Robert Fry “The Engineering of Intelligent Systems”

10:15 – 10:40 Adom Giffin “Updating Probabilities with Data and Expectation Values”

10:45 – 11:15 *Break*

**Session: Special Techniques IV**

**Chair: Carlos Rodríguez**

11:15 – 11:40 William H. Jefferys “Bayesians *Can* Learn from Old Data”

11:45 – 12:10 David Blower “Cellular Automata and Inference”

12:15 – 1:45 *Lunch*

**Session: Neuroscience**

**Chair: Keith Earle**

1:45 – 2:40 Stephen Roberts, *Invited Speaker* “Bayes, Birds and Brains: Applications of Inference and Probabilistic Modeling”

2:45 – 3:10 Chih-Yuan Tseng “Filter Out High Frequency Noise in Electroencephalographic Data using the Method of Maximum Entropy”

3:15 – 3:40 Larry Bretthorst “Automatic Phasing of Gradient-Echo Images”

3:45 – 4:15 *Break*

**Session: Special Techniques V**

**Chair: Adom Giffin**

4:15 – 4:40 Joshua Shimony “Computing the Probability for Local Brain Connectivity”

4:45 – 5:10 Angela Foudray “Bayesian Estimator for Angle Determination: Event Classification in Positron Emission Tomography”

5:15 – 5:40 Timothy Wallstrom “The Marginalization Paradox and the Formal Bayes’ Law”

# MaxEnt 2007 Program

July 8-13, 2007

Saratoga Springs NY, USA

## Thursday July 12, 2007

8:00 – 5:45 *Registration*

**Session: *Special Techniques VI***      **Chair: *Julian Center***

8:45 – 9:40 Jose M. Bernardo, *Invited Speaker*      “Objective Bayesian Region Estimation”

9:45 – 10:10 Marcello Lauretto      “The Problem of Separate Hypotheses via Mixture Models”

10:15 – 10:40 Fábio Mendez      “Inverse Langevin Approach to Time Series Data Analysis”

10:45 – 11:15 *Break*

11:15 – 11:40 Peter Sunehag      “A Hammersley-Clifford Theorem for Induced Graph Semantics”

11:45 – 12:10 John Finn      “Regression with Highly Correlated Data”

12:15 – 1:45 *Lunch*

**Session: *Data Analysis***

**Chair: *Ning Xiang***

1:45 – 2:10 Anna Pernestål      “Using Prior Information in Bayesian Inference - With Application to Fault Diagnosis”

2:15 – 2:40 Paul Goggans      “Model Comparison in Room-Acoustical Energy Decay Analysis”

2:45 – 3:10 Ramón Astudillo      “Propagation of Statistical Information through Non-Linear Feature Extractions for Robust Speech Recognition”

3:15 – 3:40 Rainer Fischer      “Integrated Data Analysis of Complementary Experiments”

### ***Excursion and Banquet***

4:45 – 9:30 Excursion to Sagamore Hotel on Lake George.  
Buses will leave from Saratoga Hotel at 4:45 pm  
Buses will return to the Saratoga Hotel at 9:30 pm

# MaxEnt 2007 Program

July 8-13, 2007

Saratoga Springs NY, USA

*Friday July 13, 2007*

**Session: Evidence, Information and Entropy** Chair: Ariel Caticha

8:45 – 9:10 Udo von Toussaint “Comparison of Numerical Methods for Evidence Calculation”  
9:15 – 9:40 Vesslin Dmitrov “On Shannon-Jaynes Entropy and Fisher Information”  
9:45 – 10:10 Robert Niven “Origins of the Combinatorial Basis of Entropy”  
10:15 – 10:40 Georgiy Karev “Replication equation and the Principal of Minimum Discrimination Information”

10:45 – 11:15 *Break*

11:15 – 11:40 Kevin Knuth “Designing Intelligent Instruments”

12:15 – 1:45 *Lunch*

**Business Meeting**

1:45 – 2:45 *Business Meeting*

# MaxEnt 2007 Program

July 8-13, 2007

Saratoga Springs NY, USA

## Poster Session

*Tuesday July 10, 2005 6:00pm – 8:00pm*

Christian C. Anderson, Karen R. Marutyan, Keith A. Wear, Mark R. Holland, James G. Miller, and G. Larry Bretthorst  
“Model Selection in Ultrasonic Measurements on Trabecular Bone”

Eric Barat, Thomas Dautremer  
“A Nonparametric Bayesian Approach for Emission Tomography Reconstruction”

Tilman David Birnstiel, Babak A. Ardekani, and Kevin H. Knuth  
“Diffusion Tensor Estimation using Bayesian Analysis”

Carlo Cafaro  
“Information Geometry and Chaos on Negatively Curved Statistical Manifolds”

Michel Robert Chapron  
“Classification of Maize and Weeds by Bayesian Networks”

Dennis G. Collins  
“Measuring Continuous Symmetry and Positional Entropy”

Marcio Diniz, Carlos A B Pereira, Julio Michael Stern  
“FBST for Unit Root Problems”

Dirk Dodt, Andreas Dinklage, Rainer Fischer, Roland Preuss  
“Spatially Resolved Electron Energy Distributions of a Discharge Plasma From Optical Emission Spectroscopy”

Philip Erner, Kevin H. Knuth  
“Intelligent Sensor Placement”

Robert L. Fry  
“Pyramidal Neurons and Cortical Stochastic Systems”

Maxime Guillaud, Merouane Debbah, Aris L. Moustakas  
“Modeling the Multiple-Antenna Wireless Channel Using Maximum Entropy Methods”

Paul M. Goggans, ChungYong Chan  
“Assigning Priors for Ordered and Bounded Parameters”

Danai Laksameethanasan, Sami S. Brandt  
“Generalised Skilling-Bryan Minimisation for Micro-Rotation Imaging in Light Microscopy”

# MaxEnt 2007 Program

July 8-13, 2007

Saratoga Springs NY, USA

Koki Kyo

“Bayesian estimation of learning effect in repetition of a simple task”

Karen R. Marutyan, Christian C. Anderson, Keith A. Wear, Mark R. Holland, James G. Miller and G. Larry Bretthorst

“Parameter Estimation in Ultrasonic Measurements on Trabecular Bone.”

Tilman Neumann

“Bayesian Inference Featuring Entropic Priors”

Robert K. Niven

“Maximum-Entropy Velocity Profiles and Boundary Layer Theory in Laminar to Turbulent Flow”

Prahalad Rangan, Kevin H. Knuth, Sanjay Goel

“Analysis of Intrusion Detection and Attack Proliferation in Computer Networks”

Rafael Maria Gutiérrez Salamanca

“Separation of Stochastic and Deterministic Information from Seismological Time Series with Nonlinear Dynamics and Maximum Entropy Methods”

Sofia Fekih Salem, Alexandre Vabre, Ali Mohammad-Djafari

“Bayesian Tomographic Reconstruction of Microsystems”

Victor Shashilov, Igor Lednev

“Bayesian Extraction of Deep UV Resonance Raman Signature of Fibrillar Cross- $\beta$  Sheet Core based on H-D Exchange Data”

Hichem Snoussi

“Tracking Fast Varying States on Riemannian Manifolds”

Man Kit Tse, Joshua Choinsky, Duane F. Carbon, Kevin H. Knuth

“Estimating Background Spectra”