# MaxEnt 2005 Program
## August 7-12, 2005
## San José State University, San José CA

### Sunday August 7, 2005

9:00   –   5:45   *Registration*

**Tutorials**
10:00  –  11:30   John Skilling        "Bayesics"
11:30  –  1:00    *Lunch*
1:00   –  2:30    Kevin Knuth         "Probability and Entropy: Statements and Questions"
2:30   –  3:00    *Break*
3:00   –  4:00    Larry Bretthorst   "Bayesian Probability Theory and Markov Chain Monte Carlo"
4:00   –  4:30    *Break*
4:30   –  5:45    Mihai Datcu        "Information Theory based Inference and Applications for Data Massives"

**Welcome Reception**
5:45   –   8:00   **Welcome Reception** will be held in the University Room

### Monday August 8, 2005

8:00   –   5:45   *Registration*

8:45   –   9:15   Welcome
9:15   –   9:45   Thomas Cover, Stanford University
9:45   –   10:45  John Burg, *Honored Speaker*   "Baubles, bangles and beads"
10:45  –   11:15  *Break*

**Session:  Models and Model Testing 1      Session Chair: Rainer Fischer**
11:15  –  11:40   Volker Dose        "Nonparametric function estimation"
11:45  –  12:10   Devinder Sivia     "Testing for uniformity"

12:15  –  1:45    *Lunch*

**Session:  Models and Model Testing 2      Session Chair: Karen Huyser**
1:45   –  2:45    David Draper, *Invited Speaker*      "Bayesian model specification"

2:45   –  3:10    Carlos Rodriguez "The ABC of model selection:  AIC, BIC, and the new CIC"
3:15   –  3:40    Ratthachat Chatpatanasiri "Bayesian Evidence Framework for Decision Tree Learning"
3:45   –  4:15    *Break*
4:15   –  4:40    Raquel Prado       "Modeling and classification of multiple time series via hierarchical mixture of autoregressions"
4:45   –  5:10    Jeff Scargle         "Density estimation via optimal segmentation"
5:15   –  5:40    Youssef Marzouk "Stochastic spectral methods for efficient Bayesian solution of inverse problems"

**Poster Session I**
6:00   –   8:00   **Poster Session I** to be held in University Room
                  Poster Session assignments follow the Oral Program below

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*Tuesday August 9, 2005*

8:00 – 5:45 *Registration*

**Session: Space Science and Astrobiology**     **Session Chair: Robin Morris**
8:45 – 9:45    Chris McKay, *Invited Speaker*    "What is life, and how do we search for it on other worlds?"

9:45 – 10:10   Phil Gregory    "Bayesian extra-solar planet detection"
10:15 – 10:40   James Benson    "Bayesian analysis of stellar optical interferometer data"

10:45 – 11:15 *Break*

**Session: Methods**      **Session Chair: Kevin Knuth**
11:15 – 12:15   John Skilling, *Invited Speaker*    "Turning ON (and OFF)"

12:15 – 1:30 *Lunch*

**Session: Imaging**      **Session Chair: Udo von Toussaint**
1:30 – 1:55   Behzad Sharif    "Optimal discretization resolution in algebraic image reconstruction"
2:00 – 2:25   Fabrice Humblot   "Super-resolution using hierarchical hidden Markov models and Bayesian estimation framework"
2:30 – 2:55   John Stutz    "Experience with Bayesian image based surface modeling"
3:00 – 3:25   Amos Golan    "An information-theoretic approach for estimation and image reconstruction"

3:30 – 4:00 *Break*

4:00 – 4:25   Olivier Féron    "Microwave imaging: Characterization of unknown dielectric or conductive materials"
4:30 – 4:55   Chris Kroenke    "Modeling axonal connectivity in primate brain from diffusion-weighted MRI data"

**Session: Source Separation**      **Session Chair: Roland Preuss**

5:00 – 5:25   Nadia Bali    "Mean field approximation for BSS of images with a compound hierarchical Gauss-Markov-Potts model"
5:30 – 5:55   Deniz Gençağa    "Bayesian separation of non-stationary mixtures of dependent Gaussian sources"

*Poster Session II*
6:00 – 8:00   **Poster Session II** to be held in University Room
      Poster Session assignments follow the Oral Program below

# MaxEnt 2005 Program
## August 7-12, 2005
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*Wednesday August 10, 2005*

8:00  –  5:45  *Registration*

**Session: Graphical Models and Bayes Nets**      **Session Chair: Kevin Wheeler**
8:45  –  9:45  Mike West, *Invited Speaker*  "Sparse model structures & stochastic computation for high-dimensional multivariate analysis"

9:45  –  10:10  Eitel Lauria  "Learning the structure of a Bayesian network:  An application of information geometry and the minimum description length principle"
10:15  –  10:40  Dawn Holmes  "Optimizing Inequality Constrained Priors in Bayesian Networks"
10:45  –  11:15  *Break*
11:15  –  11:40  Juan Lin  "Lattice theoretic aspects of inference and parameter estimation"
11:45  –  12:10  Frank Kuehnel  "Local frame junction trees in SLAM and surface inference"

12:15  –  1:30  *Lunch*

**Session: Entropy**      **Session Chair: Ali Abbas**
1:45  –  2:10  Juan José Fernández Durán    "Bayesian and maximum entropy inference for the mean and standard deviation of a population when only the sample size, mean and range are observed"
2:15  –  2:40  N. Sukumar  "Maximum entropy approximation"

**Recollections of Ed Jaynes**
2:45  –  3:15  Ron Howard, Stanford University

3:15  –  4:15  *Break*

**Buses leave Fairmont Hotel to Monterey Bay Aquarium**
4:15  –  10:30  Banquet Dinner at Monterey Bay Aquarium

approx 11:30  Buses arrive at Fairmont Hotel

# MaxEnt 2005 Program
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*Thursday August 11, 2005*

8:00   –   5:45     *Registration*

**Session:   Foundations**                   **Session Chair: Kevin Knuth**
8:45   –   9:45     Chris Fuchs, *Invited Speaker*       "Being Bayesian in a quantum world"

9:45   –   10:10   Ariel Caticha               "The information geometry of space and time"
10:15   –   10:40   Philip Goyal               "Prior probabilities: An information-theoretic approach"
10:45   –   11:15   *Break*
11:15   –   11:40   Peter Cheeseman         "Generalized maximum entropy"
11:45   –   12:10   Alberto Solana-Ortega   "Another look at the canon of plausible inference"

12:15   –   1:45     *Lunch*

**Session:   Physics**                         **Session Chair: Pat Castle**
1:45   –   2:10     Samir Chettri     "Newton, Einstein, Jeffreys and Bayesian model selection"
2:15   –   2:40     Ken Hanson       "Bayesian analysis of inconsistent measurements of neutron cross sections"
2:45   –   3:10     Rainer Fischer     "Integrated Bayesian experimental design"
3:15   –   3:40     Roland Preuss     "Errors in all variables"

3:45   –   4:15     *Break*

**Session:   Earth Science**               **Session Chair: John Stutz**
4:15   –   4:40     Richard Arnold     "Mapping tectonic stress using earthquakes"
4:45   –   5:10     Norman Sleep       "Integrating laboratory compaction data with seismogenesis models: A Bayesian
                                              framework"
5:15   –   5:40     Udo von Toussaint   "Model comparison of constitutive laws of snow avalanches"

*Friday August 12, 2005*

8:00   –   12:00   *Registration*

**Session:   Communication and Text Analysis**       **Session Chair: Ali Abbas**
8:45   –   9:10     Mihai Datcu         "Bayesian modeling for semantic communication"
9:15   –   9:40     Alexander Genkin   "Bayesian multinomial logistic regression for author identification"
9:45   –   10:10   Julian Center       "Semi-supervised learning for Bayesian pattern classification"

10:15   –   10:45   *Break*

**Session:   Biology**                         **Session Chair: Kevin Knuth**
10:45   –   11:10   Hong-Yi Bai       "Identifying biomagnetic sources in the brain by maximum entropy approach"
11:15   –   11:40   Andy Prantner     "Compartment-specific water apparent-diffusion coefficients in mammalian brain"
11:45   –   12:10   Josh Shimony     "Estimation of cerebral blood flow from dynamic susceptibility contrast MRI using a
                                              tissue model"

**Business Meeting**
12:15   –   12:45   *Business Meeting*

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**Poster Session I**
*Monday August 8, 2005   6:00pm – 8:00pm*

| | |
|---|---|
| Mina Aminghafari | "An approach to prior selection" |
| Anil Bollimunta | "Bayesian approach for estimating amplitude and latency variability in neuronal spike trains" |
| Dennis G. Collins | "Algorithm for minimum laterally adiabatically-reduced Fisher information" |
| Michael L. DeRouen | "Bayesian calibration of a high speed 3D laser ranging system" |
| Ahmed Douaik | "Bayesian maximum entropy and kriging methods for spatio-temporal mapping of soil salinity" |
| Juan Manuel Górriz | "Maximum entropy guide for BSS" |
| Fabrizia Guglielmetti | "Mixture modeling and the search for faint and extended sources in the x-ray universe" |
| Shahram Hosseini | "Maximum likelihood separation of spatially auto-correlated images using a Markov model" |
| Mathias Johansson | "Approximate Bayesian inference by adaptive quantization of the hypothesis space" |
| Adel Mohammadpour | "On classical, Bayesian and fuzzy hypothesis testing" |
| Robin D. Morris | "Parameter and structure inference for nonlinear dynamical systems" |
| Evangelos Roussos | "Variational Bayesian learning for wavelet independent component analysis" |
| Nikita A. Sakhanenko | "Understanding physics from interconnected data" |
| Julio M. Stern | "FBST for mixture model selection" |
| Geert Verdoolaege | "Bayesian estimation of $Z_{eff}$ in the Textor Tokomak from visible Bremsstrahlung and CXRS measurements" |

**Poster Session II**
*Tuesday August 9, 2005   6:00pm – 8:00pm*

| | |
|---|---|
| Ali Abbas | "Maximum entropy with upper and lower bounds" |
| Sergey I. Bityukov | "Statistically dual distributions and conjugate families" |
| Zouaoui Chama | "Mixture of Gauss-Markov with hidden Potts-Markov random field models for image recovery from the Fourier transform magnitude" |
| Anthony Gotera | "Estimating mutual information from data with error bars" |
| Mahieddine M. Ichir | "Determination of the number of components in a blind source separation problem" |
| Andrew Jackson | "Softening a hard bound to a prior PDF—a problem in geomagnetism" |
| Tomaslav Jasa | "Using Nested Sampling in the Analysis of Multi-Rate Decay with Applications to Acoustics of Coupled Rooms" |
| Endre Kiss | "Subharmonic solution of quasilinear elliptic type PDEs of mathematical physics for dissipation of information" |
| Takashi Matsumoto | "Sequential marginal likelihood change detection: Sequential Monte Carlo approach" |
| Adel Mohammadpour | "Segmentation of hyperspectral images" |
| Michele Pappalardo | "Introduction to the information in metric space" |
| Roland Preuss | "Errors in all variables" |
| Dieter Sibold | "Deconvolution of Bonner sphere detector data using Bayesian inference" |
| Tony Vignaux | "Bayesian spectral analysis of white dwarf light curves" |