Graduate Summer School: Probabilistic Models of Cognition

Wednesday July 6, 2011

8:00–8:45 *Check-In/Light Breakfast (Hosted by IPAM)*

8:45–9:00 *Introductory Remarks*

9:00–10:00 **Josh Tenenbaum** (Massachusetts Institute of Technology)
Bayesian Cognition 1

10:00–10:30 *Break*

10:30–11:30 **Josh Tenenbaum** (Massachusetts Institute of Technology)
Bayesian Cognition II

11:30–12:00 *Break*

12:00–1:00 **Noah Goodman** (Stanford University)
Introduction to graphical models and probabilistic programs I

1:00–2:30 *Lunch (on your own)*

2:30–3:30 **Noah Goodman** (Stanford University)
Introduction to graphical models and probabilistic programs II

3:30–4:00 *Break*

4:00–5:00 **Alan Yuille** (University of California, Los Angeles (UCLA))
Bayesian vision

5:00–6:30 *Reception (Location: IPAM Lobby)*

Thursday July 7, 2011

8:00–9:00 *Continental Breakfast*

9:00–10:00 **Iain Murray** (University of Edinburgh)
Bayesian machine learning

10:00–10:30 *Break*

10:30–11:30 **Iain Murray** (University of Edinburgh)
Introduction to Markov Chain Monte Carlo

11:30–12:00 *Break*

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12:00–1:00 **Sharon Goldwater** (University of Edinburgh)
Foundational models of language I

1:00–2:30 *Lunch (on your own)*

2:30–3:30 **Sharon Goldwater** (University of Edinburgh)
Foundational models of language II

3:30–4:00 *Break*

4:00–4:30 **Andreas Stuhlmueller** (Massachusetts Institute of Technology)
Other inference techniques

4:30–5:00 **Ruslan Salakhutdinov** (University of Toronto)
Approximate Inference

5:00–6:00 *Evening Q&A (Optional)*

6:00–8:30 *Dinner (on your own)*

8:30 *Evening Session at IPAM*

8:30–9:30 **Jun Zhang** (University of Michigan)
Bayesian model of information accumulation in choice-reaction time tasks

Friday July 8, 2011

8:00–9:00 *Continental Breakfast*

9:00–10:00 **Iain Murray** (University of Edinburgh)
Advanced Markov Chain Monte Carlo

10:00–10:30 *Break*

10:30–11:30 **Ruslan Salakhutdinov** (University of Toronto)
Deep Networks

11:30–12:00 *Break*

12:00–1:00 **Josh Tenenbaum** (Massachusetts Institute of Technology)
Human learning to learn via hierarchical models

1:00–2:30 *Lunch (on your own)*

2:30–3:30 **Ruslan Salakhutdinov** (University of Toronto)
Machine learning and advanced hierarchical models

3:30–4:00 *Break*

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4:00–5:00 **Brian Milch** (Google Inc.)
BLOG

5:00–6:00 *Evening Q&A (Optional)*

Saturday July 9, 2011

8:00–9:00 *Continental Breakfast*

10:00–10:30 *Break*

10:30–11:30 **Pedro Domingos** (University of Washington)
Markov logic

11:30–12:00 *Break*

12:00–1:00 **Pedro Domingos** (University of Washington)
More Markov logic

1:00–2:30 *Lunch (on your own)*

2:30–3:30 **Noah Goodman** (Stanford University)
Church (and the Probabilistic Language of Thought)

3:30–4:00 *Break*

4:00–5:00 **Judea Pearl** (University of California, Los Angeles (UCLA))
Reasoning with Causes and Counterfactuals

5:00–6:00 *Optional Discussion*

Monday July 11, 2011

8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*

9:00–10:00 **Elie Bienenstock** (Brown University)
Computation and Representation in Brains: A few Observations and one Speculation

10:00–10:30 *Break*

10:30–11:30 **Stuart Geman** (Brown University)
Representing Relationships: Conditional Modeling and Sufficiency

11:30–12:00 *Break*

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12:00–1:00 **Stuart Geman** (Brown University)
Context versus Computation

1:00–2:30 *Lunch (on your own)*

2:30–3:30 **Laurence Maloney** (New York University)
Human sensory systems as perceptual inference

3:30–4:00 *Break*

4:00–5:00 **Hongjing Lu** (University of California, Los Angeles (UCLA))
Probabilistic models of motion perception

5:00–6:30 *Reception and Talk at IPAM*

6:30–7:30 **Tomaso Poggio** (Massachusetts Institute of Technology)
The computational magic of the ventral stream: towards a theory

Tuesday July 12, 2011

8:00–9:00 *Continental Breakfast*

9:00–10:00 **Alan Yuille** (University of California, Los Angeles (UCLA))
Probability models for vision with known graph structure I & II

10:00–10:30 *Break*

10:30–11:30 **Alan Yuille** (University of California, Los Angeles (UCLA))
Compositional learning for vision

11:30–12:00 *Break*

12:00–1:00 **Laurence Maloney** (New York University)
Decision making and motor control

1:00–2:30 *Lunch (on your own)*

2:30–3:30 **Song-Chun Zhu** (University of California, Los Angeles (UCLA))
Learning And-Or Graph Representations for Objects and Events

3:30–4:00 *Break*

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4:00–5:00 **Song-Chun Zhu** (University of California, Los Angeles (UCLA))
Top-down/Bottom-up Inference in And-Or graphs

5:00–6:00 *Evening Q&A (Optional)*

6:00–8:30 *Dinner (on your own)*

8:30 *Evening Session at IPAM*

8:30–9:30 **Josh Tenenbaum** (Massachusetts Institute of Technology)
Intuitive Physics in the context of visual scene understanding

Wednesday July 13, 2011

8:00–9:00 *Continental Breakfast*

9:00–10:00 **Mark Johnson** (Macquarie University)
Non-parametric language models I

10:00–10:30 *Break*

10:30–11:30 **Mark Johnson** (Macquarie University)
Non-parametric language models II

11:30–12:00 *Break*

12:00–1:00 **Roger Levy** (University of California, San Diego (UCSD))
Sentence processing: Surprisal and noisy channel models

1:00–2:30 *Lunch (on your own)*

2:30–3:30 **Percy Liang** (University of California, Berkeley (UC Berkeley))
Inducing Semantics

3:30–4:00 *Break*

4:00–5:00 **Timothy O'Donnell** (Massachusetts Institute of Technology)
Fragment Grammars: Productivity and reuse in language

5:00–6:00 *Evening Q&A (Optional)*

6:00–8:30 *Dinner (on your own)*

8:30 *Evening Session at IPAM*

8:30–9:30 **Percy Liang** (University of California, Berkeley (UC Berkeley))
Learning syntax

Thursday July 14, 2011

8:00–9:00	*Continental Breakfast*
9:00–10:00	**Noah Goodman** (Stanford University) *Probabilistic Pragmatics (and Semantics)*
10:00–10:30	*Break*
10:30–11:30	**Roger Levy** (University of California, San Diego (UCSD)) *Language use, eye movements*
11:30–12:00	*Break*
12:00–1:00	**Naomi Feldman** (University of Maryland) *Models of phonology*
1:00–2:30	*Lunch (on your own)*
2:30–3:30	**Charles Kemp** (Carnegie-Mellon University) *Predicate logic and human learning*
3:30–4:00	*Break*
4:00–5:00	**Charles Kemp** (Carnegie-Mellon University) *Kinship*
5:00–6:00	*Evening Q&A (Optional)*
6:00–8:30	*Dinner (on your own)*
8:30	*Evening Session at IPAM*
8:30–9:30	*TBA*

Friday July 15, 2011

8:00–9:00	*Continental Breakfast*
9:00–10:00	**Josh Tenenbaum** (Massachusetts Institute of Technology) *Bayesian theory of mind*
10:00–10:30	*Break*
10:30–11:30	**Noah Goodman** (Stanford University) *Learning structured concepts from structured minds*
11:30–12:00	*Break*

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12:00–1:00 **Charles Kemp** (Carnegie-Mellon University)
Learning abstract structural forms, learning about social systems

1:00–2:30 *Lunch (on your own)*

2:30–3:30 **Tom Griffiths** (University of California, Berkeley (UC Berkeley))
Human causal induction

3:30–4:00 *Break*

4:00–5:00 **Tom Griffiths** (University of California, Berkeley (UC Berkeley))
Markov Chain Monte Carlo with People

5:00–6:00 *Evening Q&A (Optional)*

Saturday July 16, 2011

8:00–9:00 *Continental Breakfast*

9:00–10:00 **Tom Griffiths** (University of California, Berkeley (UC Berkeley))
Rational Process Models

10:00–10:30 *Break*

10:30–12:30 *Wrap -Up Discussion: Noah Goodman, Tom Griffiths, Keith Holyoak, Stuart Geman, Josh Tennenbaum, Alan Yuille, Mark Johnson*