New Deep Learning Techniques

Monday February 5, 2018

8:00 *Note: The workshop will be held at the Bruin Reception Room at Ackerman Union (Rm. 2414) on the UCLA campus.*

8:00–8:50 *Check-In and Breakfast*

8:50–9:00 *Welcome and Opening Remarks*

9:00–9:40 **Samuel Bowman** (New York University)
Toward natural language semantics in learned representations

9:55–10:10 *Break*

10:10–10:50 **Emily Fox** (University of Washington)
Interpretable and Sparse Neural Network Time Series Models for Granger Causality Discovery

11:05–11:20 *Break*

11:20–12:00 **Ellie Pavlick** (University of Pennsylvania)
Should we care about linguistics?

12:20–2:00 *Lunch (on your own)*

2:00–2:40 **Leonidas Guibas** (Stanford University)
Knowledge Transport Over Visual Data

4:30–5:30 **Yann LeCun** (New York University)
Public Lecture: Deep Learning and the Future of Artificial Intelligence

5:30–7:00 *Poster Session & Reception (Hosted by IPAM)*

Tuesday February 6, 2018

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

9:00–9:40 **Alán Aspuru-Guzik** (Harvard University)
Generative models for the inverse design of molecules and materials

9:55–10:10 *Break*

10:10–10:50 **Daniel Rueckert** (Imperial College)
Deep learning in medical imaging: Techniques for image reconstruction, super-resolution and segmentation

11:05–11:20 *Break*

(Tuesday schedule continued on next page)

(Tuesday schedule continued from previous page)

11:20–12:00 **Kyle Cranmer** (New York University)
Deep Learning in the Physical Sciences

12:20–2:00 *Lunch (on your own)*

2:00–2:40 **Stéphane Mallat** (École Normale Supérieure)
Deep Generative Networks as Inverse Problems

3:00–3:40 **Michael Elad** (Technion - Israel Institute of Technology)
Sparse Modeling in Image Processing and Deep Learning

4:30–5:30 **Yann LeCun** (New York University)
Public Lecture: AI Breakthroughs & Obstacles to Progress, Mathematical and Otherwise

5:30–7:00 *Poster Session & Reception (Hosted by IPAM)*

Wednesday February 7, 2018

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

9:00–9:40 **Xavier Bresson** (Nanyang Technological University, Singapore)
Convolutional Neural Networks on Graphs

9:55–10:10 *Break*

10:10–10:50 **Federico Monti** (Universita della Svizzera Italiana)
Deep Geometric Matrix Completion: a Geometric Deep Learning approach to Recommender Systems

11:05–11:20 *Break*

11:20–12:00 **Joan Bruna** (New York University)
On Computational Hardness with Graph Neural Networks

12:20–2:00 *Lunch (on your own)*

2:00–2:40 **Jure Leskovec** (Stanford University)
Large-scale Graph Representation Learning

2:55–3:10 *Break*

3:10–3:50 **Arthur Szlam** (Facebook)
Composable planning with attributes

4:20–5:00 **Yann LeCun** (New York University)
A Few (More) Approaches to Unsupervised Learning

Thursday February 8, 2018

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

9:00–9:40 **Sanja Fidler** (University of Toronto)
Teaching Machines with Humans in the Loop

9:55–10:10 *Break*

10:10–10:50 **Raquel Urtasun** (University of Toronto)
Deep Learning for Self-Driving Cars

11:05–11:20 *Break*

11:20–12:00 **Pratik Chaudhari** (University of California, Los Angeles (UCLA))
Unraveling the mysteries of stochastic gradient descent on deep networks

12:20–2:00 *Lunch (on your own)*

2:00–2:40 **Stefano Soatto** (University of California, Los Angeles (UCLA))
Emergence Theory of Deep Learning

2:55–3:10 *Break*

3:10–3:50 **Tom Goldstein** (University of Maryland)
What do neural net loss functions look like?

4:20–5:00 **Stanley Osher** (University of California, Los Angeles (UCLA))
New Techniques in Optimization and Their Applications to Deep Learning and Related Inverse Problems

Friday February 9, 2018

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

9:00–9:40 **Michael Bronstein** (USI Lugano, Switzerland)
Deep functional maps: intrinsic structured prediction for dense shape correspondence

9:50–10:30 **Sainbayar Sukhbaatar** (New York University)
Deep Architecture for Sets and Its Application to Multi-agent Communication

10:40–11:00 *Break*

11:00–11:40 **Zuowei Shen** (National University of Singapore)
Deep Learning: Approximation of functions by composition

11:50–12:30 **Wei Zhu** (Duke University)
LDMnet: low dimensional manifold regularized neural networks

12:40 *Conclusion*

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