

Workshop on

## Learning Data Representation: Hierarchies and Invariance

November 22-24, 2013 | McGovern Institute for Brain Research, MIT

<http://lcs1.mit.edu/ldr-workshop>

### Workshop Schedule

#### Friday Nov. 22, 2013 (MIT Bldg 46-3002, Singleton Auditorium)

14:30 Introduction to the Workshop

**Session: Early Features in Vision** | Chair: C. Tomasi

14:50 Filters and other potions for early vision and recognition (P. Perona)

15:30 Transformations in early vision from a symmetry argument (C. Stevens)

16:10 *Break*

16:40 Feedforward hierarchical models of visual processing in visual cortex (T. Serre)

17:20 Panel discussion: C. Tomasi (moderator), W. Freeman, G. Sandini + Speakers

8:00 *Reception* at Catalyst Restaurant

#### Saturday Nov. 23, 2013 (MIT Bldg 46-3002, Singleton Auditorium)

8:30am *Breakfast*

**Session: Learning Features and Representations** | Chair: A. Verri

9:30 Data representation, compressed sensing and matrix factorization (B. Recht)

10:10 Dictionary learning and all that (G. Sapiro)

10:50 *Break*

11:20 Panel discussion: A. Verri (moderator), L. Rosasco, M. Belkin, J. Buhmann + Speakers

12:20 *Lunch*

**Session: Learning Invariances and Hierarchies** | Chair: J. DiCarlo

14:00 Learning invariant feature hierarchies (Y. LeCun)

14:50 Scattering bricks to build invariants for perception (S. Mallat)

15:40 *Break*

16:10 M-theory (T. Poggio)

17:00 Panel discussion: J. Di Carlo (moderator), P. Baldi, M. Riesenhuber + Speakers

18:30 *Dinner* (up to individual participants)

**Sunday Nov. 24, 2013 (MIT Bldg 46-3002, Singleton Auditorium)**

8:30am *Breakfast*

**Session: Beyond Feedforward Architectures** | Chair: J. Tenenbaum

9:00 The role of mobility and control in the inference of representations (S. Soatto)

9:40 Atoms of recognition (S. Ullman)

10:20 *Break*

10:50 Compositional models: complexity of representation and inference (A. Yuille)

11:30 Panel discussion: J. Tenenbaum (moderator), R. Salakhutdinov + Speakers

12:30 Final remarks