Gregory Shakhnarovich

Associate Professor
Toyota Technological Institute
6045 S. Kenwood Ave, Chicago, IL
greg@ttic.edu
http://www.ttic.edu/gregory
Curriculum vitae updated: June 2017

EDUCATION

- ⋄ **Massachusetts Institute of Technology**, Cambridge, MA.
  Ph.D. in Computer Science, 2005.
  Dissertation topic: *Learning Task-Specific Similarity.*
  Advisor: Trevor Darrell.

- ⋄ **Technion–Israel Institute of Technology**, Haifa, Israel.
  M.Sc. (cum laude) in Computer Science, 2001.
  Thesis title: *Smoothed Bootstrap and Statistical Data Cloning for Classifier Evaluation.*
  Advisors: Yoram Baram, Ran El-Yaniv.

- ⋄ **Hebrew University**, Jerusalem, Israel.
  B.Sc. (cum laude) in Mathematics and Computer Science, 1994.

APPOINTMENTS

- ⋄ **Associate Professor**, Toyota Technological Institute at Chicago, since July 2016.

- ⋄ **Associate Professor, part time**, University of Chicago, Computer Science Department, since January 2017.

- ⋄ **Assistant Professor**, Toyota Technological Institute at Chicago, 2008-2016.

- ⋄ **Associate Professor, part time**, University of Chicago, Computer Science Department, 2009-2016.

- ⋄ **Visiting Researcher**, IBM Research Labs, Haifa, Israel, December 2012–February 2013.

- ⋄ **Feinberg Visiting Faculty Fellow**, Weizmann Institute of Science, December 2011–February 2012, December 2010–February 2011.

- ⋄ **Visiting Scientist**, Weizmann Institute of Science, December 2008–January 2009

- ⋄ **Postdoctoral Research Associate**, Department of Computer Science, Brown University, October 2005-2008. Research topics: brain-machine interfaces, neural decoding of motor commands, analysis of recorded neural activity.

TEACHING

- ⋄ **Instructor**, *Introduction to Statistical Machine Learning*, TTIC/University of Chicago (2010–2016), Weizmann Institute of Science (2011–2013).

⋄ **Instructor**, *Introduction to Computer Vision*, TTIC/University of Chicago (2010).

⋄ **Instructor**, *Introduction to Machine Learning*, Brown University (2006).

AWARDS

⋄ **IBM Faculty Award**, 2013

⋄ **Google Faculty Research Award**, 2013, jointly with C. Dyer (CMU), K. Gimpel (TTI-Chicago) and D. Batra (Virginia Tech)

PUBLICATIONS

Peer-reviewed journal and conference papers

H. Kamper, S. Settle, G. Shakhnarovich, K. Livescu, *Visually grounded learning of keyword prediction from untranscribed speech*, Interspeech 2017.

R. Luo, G. Shakhnarovich, *Comprehension-guided referring expressions*, Proceedings IEEE Conf. on Computer Vision and Pattern Recognition (CVPR) 2017.

G. Larsson, M. Maire, G. Shakhnarovich, *Colorization as a Proxy Task for Visual Understanding*, CVPR 2017.

G. Larsson, M. Maire, G. Shakhnarovich, *FractalNet: Ultra-Deep Neural Networks without Residuals*, International Conference on Learning Representations (ICLR) 2016.

A. Chakrabarti, J. Shao, G. Shakhnarovich, *Depth from a Single Image by Harmonizing Overcomplete Local Network Predictions*, Neural Information Processing Systems (NIPS) 2016.

G. Larsson, M. Maire, G. Shakhnarovich, *Learning Representations for Automatic Colorization*, Proceedings of European Conference on Computer Vision (ECCV) 2016.

M. Mostajabi, P. Yadollahpour, G. Shakhnarovich, *Feedforward semantic segmentation with zoom-out features*, CVPR 2015.

S. Trivedi, D. McAllester, G. Shakhnarovich, *Discriminative Metric Learning by Neighborhood Gerrymandering*, NIPS 2014.

E. Ahmed, G. Shakhnarovich, S. Maji, *Knowing a Good HOG Filter When You See It: Efficient Selection of Filters for Detection*, ECCV 2014.

S. Trivedi, J. Wang, S. Kpotufe, G. Shakhnarovich, *A Consistent Estimator of the Expected Gradient Outerproduct*, Uncertainty in Artificial Intelligence (UAI), 2014

S. Maji, G. Shakhnarovich, *Part and Attribute Discovery from Relative Annotations*, International Journal of Computer Vision (IJCV), 2014.

T. Kim, G. Shakhnarovich, K. Livescu, *Fingerspelling Recognition with Semi-Markov Conditional Random Fields*, Proceedings of the International Conference on Computer Vision (ICCV), 2013.

P. Kisilev, E. Barkan, G. Shakhnarovich, A. Tzadok, *Learning to Detect lesion boundaries in breast ultrasound images*, Breast Imaging Workshop, Proceedings of MICCAI Conference, 2013.

K. Gimpel, D. Batra, C. Dyer, G. Shakhnarovich, *A Systematic Exploration of Diversity in Machine Translation*, Conference on Empirical Methods on Natural Language Processing (EMNLP) 2013.

Z. Ren, G. Shakhnarovich, *Image Segmentation by Cascaded Region Agglomeration*, CVPR 2013.

P. Yadollahpour, D. Batra, G. Shakhnarovich, *Discriminative Re-Ranking of Diverse Segmentations*, CVPR 2013.

S. Maji, G. Shakhnarovich, *Part Discovery from Partial Correspondence*, CVPR 2013.

T. Kim, K. Livescu, G. Shakhnarovich, *American Sign Language Fingerspelling Recognition with Phonological Feature-Based Tandem Models*, IEEE Workshop on Spoken Language Technology 2012.

D. Batra, P. Yadollahpour, A. Guzman-Rivera, G. Shakhnarovich, *Diverse M-Best Solutions in Markov Random Fields*, ECCV 2012.

S. Maji, G. Shakhnarovich, *Part Annotations via Pairwise Correspondence*, 4th Workshop on Human Computation, AAAI 2012.

D. Glasner, M. Galun, S. Alpert, R. Basri, G. Shakhnarovich, *Viewpoint-Aware Object Detection and Pose Estimation*, ICCV 2011.

T. Kim, G. Shakhnarovich, R. Urtasun, *Sparse coding for learning interpretable spatio-temporal primitives*, NIPS 2010.

C. Vargas-Irwin, G. Shakhnarovich, P. Yadollahpour, J. M. K. Mislow, M. J. Black, J. P. Donoghue, *Decoding Complete Reach and Grasp Actions from Local Primary Motor Cortex Populations*, The Journal of Neuroscience, 2010.

A. Ritz, G. Shakhnarovich, A. R. Salomon, B. J. Raphael, *Discovery of Phosphorylation Motif Mixtures in Phosphoproteomics Data*, Bioinformatics, 2009.

C. Demiralp, G. Shakhnarovich, S. Zhang, D. H. Laidlaw, *Slicing-based coherence measure for refining clusters of 3D curves*, Proceedings of MICCAI Conference, 2008

P. K. Artemiadis, G. Shakhnarovich, C. Vargas-Irwin, J. P. Donoghue, M. J. Black, *Decoding grasp aperture from motor-cortical population activity*, Proceedings of IEEE Neural Engineering Conference, 2007.

G. Shakhnarovich, S.-P. Kim, M. J. Black, *Nonlinear Physically-Based Models for Decoding Motor-Cortical Population Activity*, NIPS 2006.

N. Srebro, G. Shakhnarovich, S. T. Roweis, *An Investigation of Computational and Informational Limits in Gaussian Mixture Clustering*, Proceedings of International Conference on Machine Learning (ICML) 2006.

L. Taycher, G. Shakhnarovich, T. Darrell, D. Demirdjian, *Conditional Random People: Tracking Humans with CRFs and Grid Filters*, CVPR 2006.

D. Demirdjian, L. Taycher, G. Shakhnarovich, T. Darell, *Avoiding the Streetlight Effect: Tracking by Exploring Likelihood Modes*, ICCV 2005.

L. Ren, G. Shakhnarovich, J. Hodgins, H. Pfister, P. Viola, *Learning Silhouette Features for Control of Human Motion*, ACM Transactions on Graphics, 2005.

K. Grauman, G. Shakhnarovich, T. Darrell, *Virtual Visual Hulls: Example-Based 3D Shape Inference from a Single Silhouette*, Proceedings of the 2nd Workshop on Statistical Methods in Video Processing, 2004.

K. Grauman, G. Shakhnarovich, T. Darrell, *A Bayesian Approach to Image-Based Visual Hull Reconstruction*, CVPR 2003.

K. Grauman, G. Shakhnarovich, T. Darrell, *Inferring 3D Structure with a Statistical Image-Based Shape Model*, ICCV 2003.

G. Shakhnarovich, P. Viola, T. Darrell, *Fast Pose Estimation with Parameter Sensitive Hashing*, ICCV 2003.

G. Shakhnarovich, P. A. Viola, B. Moghaddam, *A Unified Learning Framework for Real Time Face Detection and Classification*, Proceedings of the Int. Conf. on Automatic Face and Gesture Recognition, 2002.

G. Shakhnarovich, J. W. Fisher, T. Darrell, *Face recognition from long-term observations*, ECCV 2002.

G. Shakhnarovich, T. Darrell, *On Probabilistic Combination of Face and Gait Cues for Identification*, Proceedings of the Int. Conf. on Automatic Face and Gesture Recognition, 2002.

B. Moghaddam, G. Shakhnarovich, *Boosted Dyadic Kernel Discriminants*, NIPS 2002.

G. Shakhnarovich, L. Lee, T. Darrell, *Integrated Face and Gait Recognition From Multiple Views*, CVPR 2001.

G. Shakhnarovich, R. El-Yaniv, Y. Baram, *Smoothed Bootstrap and Statistical Data Cloning for Classifier Evaluation*, ICML 2001.

Edited volume and book chapters

G. Shakhnarovich, B. Moghaddam, *Face Recognition in Subspaces*, In Handbook of Face Recognition, S. Z. Li and A. K. Jain, Ed. Springer London, 2011.

G. Shakhnarovich, T. Darrell, P. Indyk, Editors. *Nearest Neighbors in Learning and Vision: Theory and Practice.* MIT Press, 2005.

Non-reviewed preprints

T. Kim, J. Keane, W. Wang, H. Tang, J. Riggle, G. Shakhnarovich, D. Brentari, K. Livescu, *Lexicon-Free Fingerspelling Recognition from Video: Data, Models, and Signer Adaptation*, CoRR abs/1609.07876, arXiv.org, 2016.

I. Vasiljevic, A. Chakrabarti, G. Shakhnarovich. *Examining the Impact of Blur on Recognition by Convolutional Networks*, CoRR abs/1611.05760, arXiv.org, 2016.

SERVICE

Director of Admissions, TTIC, 2015-present.

Faculty IT Liaison, TTIC, 2012-present.

Area Editor, Journal on Computer Vision and Image Understanding.

Associate Editor, IEEE Transactions on Pattern Analysis and Machine Intelligence.

Area Chair, Conference on Computer Vision and Pattern Recognition (CVPR), 2016, 2017, 2018.

Area Chair, International Conference on Computer Vision (ICCV), 2015.

Area Chair, International Conference on Machine Learning (ICML), 2013.

Founding organizer and steering committe member, Midwest Computer Vision Workshop, 2009-present.

Workshop organizer (with D. Batra, B. Kulis and K. Weinberger): Beyond Mahalanobis–Supervised Large-Scale Learning of Similarity, at Neural Information Processing Systems 2011.

Founding organizer of MIT Machine Vision Colloquium (2003-2005).

Workshop organizer (with T. Darrell, P. Indyk and P. Viola): Nearest neighbor methods in vision and learning, at Neural Information Processing Systems 2003.

Regular member of program committees: ICCV 2005-present, ECCV 2006-present, CVPR 2006-present, ICML 207-present, NIPS 2005-present, AI&Statistics 2007-present.

Reviewer for IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Image Processing, IEEE Transactions on Biomedical Engineering, Neural Information Processing Systems, Image and Vision Computing, International Journal of Computer Vision.