

Chen-Ping Yu

(585) 576-5839, chenping.yu@phiar.net

Academic website: <http://www.chenpingyu.org>

LinkedIn: <https://www.linkedin.com/in/chenpingyu/>

100 Heard St, #351, Chelsea, MA 02150, USA

ACADEMIC POSITIONS

Harvard University

Postdoctoral Fellow, Cognitive and Neural Organization Lab

Cambridge, MA

07/2016 – 07/2017

- Research area: biologically-consistent deep learning models of the ventral visual pathway, fMRI analysis, high-level visual cortical topography, functional connectivity of the visual cortex
- Supervisor: Professor Talia Konkle

EDUCATION

Stony Brook University

Ph.D., Computer Science

Stony Brook, NY

09/2010 – 06/2016

- Research area: computer vision, machine learning, computational models of clutter perception and visual search, proto-objects, brain-inspired ventral stream deep learning networks, image and video segmentation, graph-based clustering, categorical feature representations
- Dissertation: “*Computational models of visual features: from proto-objects to object categories*”
- Advisors: Professor Dimitris Samaras, and Professor Gregory Zelinsky

Pennsylvania State University

M.S., Computer Science & Engineering

University Park, PA

09/2008 – 06/2010

- Research area: computer vision, machine learning, neuroimage analysis.
- Thesis: “*Statistical asymmetry-based automatic brain tumor detection from 3D MR images*”
- Advisor: Professor Yanxi Liu

Rochester Institute of Technology

M.S., Computer Science

Rochester, NY

09/2006 – 06/2008

- Research area: computational neuroscience, receptive field models, biologically-inspired machine vision
- Thesis: “*Computational model of MST neuron receptive field and interaction effect for the perception of self-motion*”
- Advisors: Professor Roger Gaboriski, and Professor Charles Duffy

Rochester Institute of Technology

B.S., Computer Science, minor in Psychology

Rochester, NY

09/2000 – 06/2005

GRANTS AND AWARDS

ComputeFest Exploratory Visualization Contest Finalist Prodigy Finance	2017
GSEU Professional Development Award Stony Brook University	2016
Doctoral Consortium Travel Award International Conference on Computer Vision (ICCV)	2015
Student Travel Award Advances in Neural Information Processing Systems (NIPS)	2013
EAPSI Fellowship National Science Foundation (NSF)	2013
Department Chair Fellowship Stony Brook University	2010-2011
Full Graduate Assistantship Stony Brook University	2010-2016
College of Engineering Fellowship Pennsylvania State University	2008
Full Graduate Assistantship Pennsylvania State University	2008-2010
Outstanding Graduate Student Award Rochester Institute of Technology	2008
Graduate Scholarship Grant Rochester Institute of Technology	2006-2008
Dean's Honors List Rochester Institute of Technology	2005

MANUSCRIPTS

- [..] **Yu, C.-P.**, Liu, H., Samaras, D., & Zelinsky, G. (*in preparation*). Modeling categorical search guidance using a convolutional neural network designed after the ventral visual pathway.
- [..] Long, B., **Yu, C.-P.**, & Konkle, T. (*Under Review*). A mid-level organization of the ventral stream.

PEER-REVIEWED PUBLICATIONS

- [1] Hou, L., **Yu, C.-P.**, & Samaras, D. (2017). Squared earth mover's distance-based loss for training deep neural networks on ordered-classes. In *Neural Information Processing Systems (NIPS), Workshop on Learning on Distributions, Functions, Graphs and Groups*, Long Beach, CA.
- [2] Le, H., **Yu, C.-P.**, Zelinsky, G., & Samaras, D. (2017). Co-localization with category-consistent features and geodesic distance propagation. In *International Conference on Computer Vision (ICCV), Workshop on CEFRL*, Venice, Italy.
- [3] **Yu, C.-P.**, Maxfield, J., & Zelinsky, G. (2016). Searching for category-consistent-features: a computational approach to understanding categories. *Psychological Science*, 27(6), 870-884.

- [4] Le, H., Nguyen, V., **Yu, C.-P.**, & Samaras, D. (2016). Geodesic distance histogram feature for video segmentation. In *Asian Conference on Computer Vision (ACCV)*, Taipei, Taiwan.
- [5] Vicente, T. Y., Hou, L., **Yu, C.-P.**, Nguyen, M. H., & Samaras, D. (2016). Large-scale training of shadow detectors with noisily-annotated shadow examples. In *European Conference on Computer Vision (ECCV)*, Amsterdam, the Netherlands.
- [6] **Yu, C.-P.**, Le, H., Zelinsky, G., & Samaras, D. (2015). Efficient video segmentation using parametric graph partitioning. In *International Conference on Computer Vision (ICCV)*, Santiago, Chile.
- [7] Zelinsky, G., & **Yu, C.-P.** (2015). Clutter perception is invariant to image size. *Vision Research*, 116(Pt B), 142-151.
- [8] **Yu, C.-P.**, Samaras, D., & Zelinsky, G. (2014). Modeling visual clutter perception using proto-object segmentation. *Journal of Vision*, 14(7), 1-16.
- [9] **Yu, C.-P.**, Ruppert, G., Collins, R., Nguyen, D., Falcao, A., & Liu, Y. (2014). 3D blob based brain tumor detection and segmentation in MR images. In *International Symposium on Biomedical Imaging (ISBI)*, Beijing, China.
- [10] **Yu, C.-P.**, Hua, W.-Y., Samaras, D., & Zelinsky, G. (2013). Modeling clutter perception using parametric proto-object partitioning. In *Advances in Neural Information Processing Systems (NIPS)*, Lake Tahoe, CA.
- [11] Vicente, T. Y., **Yu, C.-P.**, & Samaras, D. (2013). Single image shadow detection using multiple cues in a supermodular MRF. In *British Machine Vision Conference (BMVC)*, Bristol, UK.
- [12] **Yu, C.-P.**, Ruppert, G., Nguyen, D., Falcao, A., & Liu, Y. (2012). Statistical asymmetry-based brain tumor segmentation from 3D MR images. In *International Conference on Bio-inspired Systems and Signal Processing (BIOSSTEC)*, Vilamoura, Portugal.
- [13] Ruppert, G., Teverovskiy, L., **Yu, C.-P.**, Falcao, A., & Liu, Y. (2011). A new symmetry-based method for mid-sagittal plane extraction in neuroimages. In *International Symposium on Biomedical Imaging (ISBI)*, Chicago, IL.
- [14] **Yu, C.-P.**, Page, W., Gaborski, R., & Duffy, C. (2010). Receptive field dynamics underlying MST neuronal optic flow selectivity. *Journal of Neurophysiology*, 103(5), 2794-2807.
- [15] **Yu, C.-P.**, Page, W., Duffy, C., & Gaborski, R. (2009). Computational model of cortical neuronal receptive fields for self-motion perception. In *Applied Imagery and Pattern Recognition Workshop (AIPR)*, Washington D.C., USA.

CONFERENCE PRESENTATIONS

- [1] **Yu, C.-P.**, & Konkle, T. (2017). Map-CNN: A convolutional neural network with map-like organizations. Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- [2] Zelinsky, G., & **Yu, C.-P.** (2017). Modeling categorical search guidance using a convolutional neural network designed after the ventral visual pathway. Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.

- [3] Le, H., **Yu, C.-P.**, Samaras, D., & Zelinsky, G. (2017). Object detection and localization for free from category-consistent CNN features. Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- [4] **Yu, C.-P.**, Maxfield, J., & Zelinsky, G. (2016). Generating the features for category representation using a deep convolutional neural network. Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- [5] Maxfield, J., **Yu, C.-P.**, & Zelinsky, G. (2016). Predicting categorical search behavior on individual trials using category-consistent features. Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- [6] Chen, Y., **Yu, C.-P.**, & Zelinsky, G. (2016). Adding shape to saliency: a proto-object saliency map for predicting fixations during scene viewing. Talk presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- [7] **Yu, C.-P.**, & Zelinsky, G. (2015). Effects of image size on clutter perception: more evidence for proto-object segmentation. Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- [8] Maxfield, J., **Yu, C.-P.**, & Zelinsky, G. (2015). Searching through the hierarchy: modeling categorical search using class-consistent features. Talk presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- [9] **Yu, C.-P.**, Samaras, D., & Zelinsky, G. (2014). Modeling visual clutter perception using proto-object segmentation. Poster presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- [10] Maxfield, J., **Yu, C.-P.**, & Zelinsky, G. (2014). Searching through the hierarchy: a behavioral and computational approach to understanding categorical search. Talk presented at the annual meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- [11] Koshy, D., **Yu, C.-P.**, Nguyen, D., Kashyap, S., Collins, R., & Liu, Y. (2011). Supervised machine learning for brain tumor detection in structural MRI. Talk presented at the annual meeting of the *Radiology Society of North America*, Chicago, IL.
- [12] **Yu, C.-P.**, Page, W., Gaborski, R., & Duffy, C. (2008). Modeling MST optic flow responses using receptive field segmental interactions. Poster presented at the annual meeting of the *Society for Neuroscience*, Washington D.C., USA.
- [13] **Yu, C.-P.**, Page, W., Gaborski, R., & Duffy, C. (2007). Modeling the receptive field organization of optic flow selective MST neurons. Poster presented at the annual meeting of the *Society for Neuroscience*, San Diego, CA.

PROFESSIONAL ORGANIZATIONS

Vision Sciences Society member
IEEE member
ACM member
Society for Neuroscience member

AD-HOC REVIEWING

PLoS ONE
Advances in Neural Information Processing Systems (NIPS)
Computational and Mathematical Methods in Medicine
Journal of Vision

INVITED TALKS

Brain-inspired deep learning Yourator – Startup Tech Talk	Dec 2017
The role of artificial intelligence in augmented reality MDG Boston Oct Forum – Augmented and Virtual Reality	Oct 2017
Searching for category-consistent-features: a computational approach to understanding categories Visual Attention Lab – Harvard Medical School	Apr 2017
Category-consistent features for object category representation Harvard Vision Sciences Lab	Feb 2016
Parametric graph partitioning and its applications JP Morgan Chase Tech Talk Series	Jul 2015
Modeling visual clutter perception using proto-objects Stony Brook University Cognitive Science Colloquium	Oct 2014
Visual search and image clutter Shutterstock Tech Talk	Feb 2014

TEACHING EXPERIENCES

Stony Brook University	Stony Brook, NY
Guest Lecturer, Advanced Computer Vision	Spring 2015
Teaching Assistant, Computational Biology	Fall 2011
Teaching Assistant, Analysis of Algorithms	Fall 2011
Teaching Assistant, Programming in JAVA	Spring 2010
Pennsylvania State University	University Park, PA
Teaching Assistant, Intro to Computer Graphics	Fall 2009
Teaching Assistant, Scientific Programming using Matlab	Spring 2009
Teaching Assistant, Data Structure and Algorithms	Fall 2008

RELATED PROFESSIONAL EXPERIENCES

Phiar Co-Founder, CEO	Allston, MA 2017-Present
<ul style="list-style-type: none">• Lead the AI, Deep Learning, and Computer Vision development of the augmented reality navigation and artificial intelligence safety detection technology• Lead, organize, and manage the overall vision and progress of the startup	

- Kernel** Venice, CA
Deep learning and modeling consultant 2016
- Provide expertise in deep learning techniques and modeling advices for the development of human neural prosthesis
- PaintaPic** New York, NY
Chief Science Officer 2015-2017
- Lead the development and implementation of fast and accurate image partitioning methods, for online conversion of custom user uploaded images to paint-by-number formats
- Shutterstock** New York, NY
Computer vision intern Summer, 2015
- Develop deep learning models for mapping search queries to images
 - Research in deep convolutional neural networks (CNNs) for face detection, age estimation, and language classification using Torch7 and Caffe in Python
 - Research in LSTM recurrent networks (RNNs) for learning language representations
- Riverbed Technologies** Sunnyvale, CA
Research intern Summer, 2010
- Research in locality sensitive hashing schemes (LSH) for efficient data de-duplication
 - Implement and analyze existing LSH methods (E2LSH, min-hash, simhash) in C++
- Carnegie Mellon University, Robotics Institute** Pittsburgh, PA
Research assistant Summer, 2009
- Research in 3D neuroimage processing for computer aided diagnosis of Alzheimer's disease
 - Dana analysis and mining using statistical machine learning techniques
- University of Rochester Medical Center, Cognitive Neuroscience Lab** Rochester, NY
Research analyst programmer 2004-2008
- Develop and implement research software to assess impaired human navigation in Alzheimer's disease
 - Develop computational model for MST single neuron receptive fields
- University of Washington** Seattle, WA
Research assistant Summer, 2003
- Analyze the computational load and efficiency of the 3D graphics rendering farm