

# Marius Cătălin Iordan

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## ACADEMIC APPOINTMENTS & EDUCATION

Postdoctoral Researcher 2016 - present

**Princeton Neuroscience Institute, Princeton University**

Advisors: Jonathan D. Cohen, Kenneth A. Norman, Nicholas B. Turk-Browne, and Daniel N. Osherson

Ph.D., Computer Science, M.S., Computer Science 2009 - 2016

**Stanford University**

Advisors: Fei-Fei Li and Diane M. Beck (University of Illinois)

Degree Focus: Cognitive and Computational Neuroscience, Machine Learning

B.A., Computer Science, Mathematics, Cognitive Science 2005 - 2009

**Williams College**

*Magna cum laude*, Highest Honors in Computer Science

## FELLOWSHIPS, HONORS, & AWARDS

Society for Neuroscience (SfN) Postdoctoral Trainee Professional Development Award	2018
Real-Time Functional Imaging and Neurofeedback Conference (rtFIN) Best Poster Award	2017
Real-Time Functional Imaging and Neurofeedback Conference (rtFIN) Travel Award	2017
Society for Neuroscience (SfN) Graduate Student Trainee Professional Development Award	2015
Phi Beta Kappa William and Adeline Hendess Graduate Fellowship	2015
Stanford University Bio-X Vision Sciences Society (VSS) Travel Award	2015
Cognitive Neuroscience Society (CNS) Travel Award	2015
Stanford University Bio-X Society for Neuroscience (SfN) Travel Award	2014
Stanford University SPICE Community Enhancement Grant	2014
Stanford University VPGE Community Engagement Grant	2014
William R. Hewlett Graduate Fellowship (SGF)	2009 - 2014
Science Teaching Through Art (STAr) Best Presenter Award	2013
Science Teaching Through Art (STAr) Best Poster Award	2013
Sigma Xi Scientific Society, <i>elected</i>	2009
Williams College Horace F. Clark Fellowship Prize	2009
Computing Research Association (CRA) Undergraduate Awards, <i>Honorable Mention</i>	2009
Phi Beta Kappa Academic Honor Society, <i>elected</i>	2008
Williams College Edgar M. Bronfman Class of 1960 Fellowship	2006 - 2007

## PUBLICATIONS AND SUBMITTED MANUSCRIPTS

**Jordan MC**, Greene MR, Fei-Fei L, Beck DM. (submitted). Sequential warping of cortical representational geometries according to cognitive principles contributes to the emergence of separable categories.

**Jordan MC**, Ellis CT, Lesnick M, Osherson DN, Cohen JD. (2018). Feature ratings and empirical dimension-specific similarity explain distinct aspects of semantic similarity. *Proceedings of the 40<sup>th</sup> Annual Meeting of the Cognitive Science Society*.

Piazza EA, **Jordan MC**, Lew-Williams C. (2017). Mothers consistently alter their unique vocal fingerprints to communicate with infants. *Current Biology*.

**Jordan MC**, Greene MR, Beck DM, Fei-Fei L. (2016). Typicality sharpens neural representations in object-selective cortex. *Neuroimage*.

**Jordan MC**, Joulin A, Beck DM, Fei-Fei L. (2015). Locally-optimized inter-subject alignment of functional cortical regions. *Proceedings of the 4th Annual Machine Learning and Interpretation in Neuroimaging (MLINI) Workshop, Advances in Neural Processing Systems (NIPS)*.

**Jordan MC**, Greene MR, Beck DM, Fei-Fei L. (2015). Basic level category structure emerges gradually across human ventral visual cortex. *Journal of Cognitive Neuroscience*.

Baldassano C, **Jordan MC**, Beck DM, Fei-Fei L. (2012). Discovering voxel-level functional connectivity between cortical regions. *Proceedings of the 1st Annual Machine Learning and Interpretation in Neuroimaging (MLINI) Workshop, Advances in Neural Processing Systems (NIPS)*.

Baldassano C, **Jordan MC**, Beck DM, Fei-Fei L. (2012). Voxel-level functional connectivity using spatial regularization. *NeuroImage*.

Grigoriev I, **Jordan MC**, Lubin A, Ince N, Silva CE. (2012). On  $\mu$ -compatible metrics and measurable sensitivity. *Colloquium Mathematicum*.

Heeringa B, **Jordan MC**, Theran L. (2011). Searching in dynamic partial orders. *Algorithms and Data Structures Symposium (WADS)*.

Barker S, **Jordan MC**, Albrecht J, Raghavan B. (2008). Kudzu: A self-balancing P2P file transfer system. *Proceedings of the 3rd Workshop on Tackling Computer Systems Problems with Machine Learning (SysML)*.

## MANUSCRIPTS IN PREPARATION

**Jordan MC**, Ritvo VJH, Norman KA, Turk-Browne NB, Cohen JD. (in preparation). Using closed-loop real-time fMRI neurofeedback to induce neural plasticity and influence perceptual similarity.

**Jordan MC**, Ellis CT, Lesnick M, Osherson DN, Cohen JD. (in preparation). Predicting semantic similarity judgments from neural responses jointly elicited across frontal, parietal, and occipito-temporal cortices.

**Jordan MC**, Ellis CT, Lesnick M, Osherson DN, Cohen JD. (in preparation). Semantic similarity judgments exhibit anchoring effects when cued across specific features.

**Jordan MC**, Fannjiang C, Fei-Fei L, Beck DM. (in preparation). Pushing the boundaries of fine-grained object classification using fMRI decoding in human occipito-temporal cortex.

Hoskin AN, Musslick S, **Jordan MC**, Cohen JD. (in preparation). Why we struggle to multitask: Converging evidence from computational modeling, human behavior, and neuroimaging.

## CONFERENCE PRESENTATIONS

### 2019

**Jordan MC**, Ritvo VJH, Norman KA, Turk-Browne NB, Cohen JD. (2019). Using closed-loop real-time fMRI neurofeedback to induce neural plasticity and influence perceptual similarity. *Vision Sciences Society Annual Meeting (VSS)*.

Riberto M, **Jordan MC**, Paz R, Pobric G, Talmi D. (2019). Using representational similarity analysis to investigate emotional effects on mental representation. *Israel Society for Neuroscience Annual Meeting (ISFN)*.

### 2018

**Jordan MC**, Ritvo VJH, Norman KA, Turk-Browne NB, Cohen JD. (2018). Using closed-loop real-time fMRI neurofeedback to induce neural plasticity and influence perceptual similarity. *Society for Neuroscience Annual Meeting (SfN)* **(Professional Development Award)**.

Hoskin AN, Musslick S, **Jordan MC**, Cohen JD. (2018). Why we struggle to multitask: Converging evidence from computational modeling, human behavior, and neuroimaging. *Society for Neuroscience Annual Meeting (SfN)*.

**Jordan MC**, Ellis CT, Lesnick M, Osherson DN, Cohen JD. (2018). Feature ratings and empirical dimension-specific similarity explain distinct aspects of semantic similarity. *Cognitive Science Society Annual Meeting (CogSci)* **(Oral)**.

**Jordan MC**, Ritvo VJH, Norman KA, Turk-Browne NB, Cohen JD. (2018). Inducing neural plasticity and perceptual similarity using real-time fMRI neurofeedback. *Organization for Human Brain Mapping Annual Meeting (OHBM)*.

**Jordan MC**, Ritvo VJH, Norman KA, Turk-Browne NB, Cohen JD. (2018). Inducing neural plasticity and perceptual similarity using real-time fMRI neurofeedback. *Vision Sciences Society Annual Meeting (VSS)* **(Oral)**.

### 2017

**Jordan MC**, Ritvo VJH, Norman KA, Turk-Browne NB, Cohen JD. (2017). KL-evidence: A novel multivariate method for differentiating representations. *Real-Time Functional Imaging and Neurofeedback Conference (rtFIN)* **(Travel Award) (Best Poster Award)**.

**Jordan MC**, Ritvo VJH, Norman KA, Turk-Browne NB, Cohen JD. (2017). Inducing neural plasticity and perceptual similarity using real-time fMRI neurofeedback. *Society for Neuroscience Annual Meeting (SfN)*.

Piazza EA, **Jordan MC**, Lew-Williams C, Hasson U. (2017). The importance of “motherese”: Early drivers of successful communication. *Society for Neuroscience Annual Meeting (SfN)*.

Piazza EA, **Jordan MC**, Lew-Williams C. (2017). Mothers consistently alter their unique vocal fingerprints to communicate with their infants. *Interdisciplinary Advances in Statistical Learning (IASL)* **(Oral)**.

**lordan MC**, Ellis CT, Osherson DN, Cohen JD. (2017). The relative contribution of features and dimensions to semantic similarity. *Vision Sciences Society Annual Meeting (VSS)*.

Piazza EA, **lordan MC**, Lew-Williams C. (2017). Timbre code-switching: How mothers alter their unique vocal statistics to communicate with their children. *Biennial Meeting of the Society for Research in Child Development (SRCD)* **(Oral)**.

## 2016

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2016). Sequential warping of neural representations according to cognitive principles across the ventral stream. *Society for Neuroscience Annual Meeting (SfN)*.

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2016). Category boundaries and typicality warp the neural representation space of real-world categories. *Cognitive Neuroscience Society Annual Meeting (CNS)*.

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2016). Typicality sharpens category boundaries in object-selective cortex. *Stanford University Bio-X Interdisciplinary Initiatives (IIP) Symposium*.

## 2015

**lordan MC**, Joulin A, Beck DM, Fei-Fei L. (2015). Locally-optimized inter-subject alignment of functional cortical regions. *Machine Learning and Interpretation in Neuroimaging (MLINI) Workshop, NIPS*.

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2015). Typicality sharpens neural representation in object-selective cortex. *Society for Neuroscience Annual Meeting (SfN)* **(Oral) (Professional Development Award)**.

**lordan MC**, Fannjiang C, Beck DM, Fei-Fei L. (2015). Pushing the boundaries of fine-grained object fMRI decoding in human visual cortex. *Organization for Human Brain Mapping Annual Meeting (OHBM)*.

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2015). Category boundaries and typicality warp the neural representation space of real-world categories. *Vision Sciences Society Annual Meeting (VSS)* **(Oral) (Travel Award)**.

Fannjiang C, **lordan MC**, Beck DM, Fei-Fei L. (2015). Pushing the boundaries of fine-grained object classification using fMRI decoding in human visual cortex. *Vision Sciences Society Annual Meeting (VSS)*.

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2015). Typicality sharpens neural representation in object-selective cortex. *Cognitive Neuroscience Society Annual Meeting (CNS)* **(Oral) (Travel Award)**.

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2015). Basic level category structure emerges gradually across human ventral visual cortex. *Bay Area Vision Research Day (BAVRD)*.

## 2014

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2014). Cohesion and distinctiveness in human visual cortex favor basic level representations. *Society for Neuroscience Annual Meeting (SfN)* **(Oral) (Travel Award)**.

**lordan MC**, Joulin A, Beck DM, Fei-Fei L. (2014). Locally-optimized inter-subject alignment of functional cortical regions. *Vision Sciences Society Annual Meeting (VSS)* **(Oral)**.

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2014). Cohesion and distinctiveness in human visual cortex favor basic level representations. *Stanford Center for Biomedical Imaging Symposium Annual Meeting (CBIS)* **(Oral)**.

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2014). Real-world objects acquire basic-level advantage in occipito-temporal cortex. *Biomedical Computation at Stanford University (BCATS)* (**Best Poster Award Runner-Up**).

## 2013

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2013). Real-world objects acquire basic-level advantage in occipito-temporal cortex. *Bay Area Vision Research Day (BAVRD)*.

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2013). Object typicality sharpens neural representation in object-selective cortex. *Vision Sciences Society Annual Meeting (VSS)* (**Oral**).

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2013). Real-world objects acquire basic-level advantage in occipito-temporal cortex. *Cognitive Neuroscience Society Annual Meeting (CNS)*.

## 2012

Baldassano C, **lordan MC**, Beck DM, Fei-Fei L. (2012). Discovering voxel-level functional connectivity between cortical regions. *Machine Learning and Interpretation in Neuroimaging (MLINI) Workshop, Advances in Neural Information Processing Systems (NIPS)* (**Oral**).

**lordan MC**, Greene MR, Beck DM, Fei-Fei L. (2012). Neural representations of object categories at multiple taxonomic levels. *Vision Sciences Society Annual Meeting (VSS)* (**Oral**).

## 2011

Baldassano C, **lordan MC**, Beck DM, Fei-Fei L. (2011). Fine-grained functional connectivity using spatial regularization. *Machine Learning and Interpretation in Neuroimaging (MLINI) Workshop, Advances in Neural Information Processing Systems (NIPS)*.

Baldassano C, **lordan MC**, Beck DM, Fei-Fei L. (2011). Objects in context: Decoding and connectivity. *Collaborative Research in Computational Neuroscience Principal Investigator Annual Meeting (CRCNS)*.

**lordan MC**, Baldassano C, Beck DM, Fei-Fei L. (2011). Translation invariance of natural scene categories. *Vision Sciences Society Annual Meeting (VSS)* (**Oral**).

Baldassano C, **lordan MC**, Beck DM, Fei-Fei L. (2011). Decoding objects undergoing Contextual violations. *Vision Sciences Society Annual Meeting (VSS)*.

## INVITED TALKS

Computational Approaches to Understanding the Organization of Semantic Knowledge. Mar 2019  
*University of Indiana, Bloomington — Machine Learning & Psychology Colloquium.*

Using Closed-Loop Real-Time fMRI Neurofeedback to Influence Categorical Perception. Jan 2019  
*University of Toronto — Statistics & Psychology Colloquium.*

Computational Approaches to Understanding Human Visual and Semantic Categorization. Dec 2018  
*Pomona College — Computer Science Department Colloquium Series.*

Using Real-Time fMRI Neurofeedback to Induce Neural Plasticity and Perceptual Similarity. <i>Princeton University — Cognitive Research Seminar Series.</i>	Sep 2017
Object Categories: From Cognitive Structure to Neural Representation. <i>Williams College — Cognitive Science Colloquium Series.</i>	Nov 2016
Cognitive Utility Effects on Neural Dimensions of Object Categorization. <i>University of California, Berkeley — Psychology Department Seminar.</i>	Feb 2016
Uncovering the Neural Representation of Multiple Dimensions of Object Categorization. <i>Princeton University — Princeton Neuroscience Institute Seminar.</i>	Sep 2015
Basic Level Category Structure Emerges Gradually Across Human Ventral Visual Cortex. <i>Stanford University — Psychology Department Vision Lunch Seminar.</i>	Jan 2015
Cohesion and Distinctiveness in Visual Cortex Favor Basic Level Representations. <i>Cañada College — STEM Speaker Series.</i>	Oct 2014
Typicality Sharpens Neural Representations in Object-Selective Cortex. <i>University of Rochester — Brain and Cognitive Sciences Department Seminar.</i>	Aug 2013
Real-World Objects Acquire Basic Level Advantage in Occipito-Temporal Cortex. <i>University of California, Berkeley — Vision Science Department Annual Retreat.</i>	Dec 2012

## TEACHING EXPERIENCE

### Instructor

Cognitive and Computational Concerns in Cortical Concept Categorization <i>Princeton University. Neuroscience Junior Tutorial. 11 students</i>	Fall 2017
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### Guest Lectures

Networks and Hierarchical Processing: Object Recognition in Human and Computer Vision <i>Stanford University. CS 131. Computer Vision and Applications</i>	Dec 2014
A Primer on Human Vision: Insights and Inspiration for Computer Vision <i>Stanford University. CS 131. Computer Vision and Applications</i>	Oct 2014

### Course Assistant | Stanford University

CS 131. Computer Vision, <i>50 students</i>	Fall 2014
CS 229. Machine Learning, <i>460 students</i>	Fall 2011

### Teaching Assistant | Williams College

CS 334. Programming Languages, <i>30 students</i>	Spring 2009
CS 361. Theory of Computation, <i>25 students</i>	Fall 2008
CS 334. Programming Languages, <i>30 students</i>	Spring 2008

MATH 211. Linear Algebra, <i>60 students</i>	Spring 2008
CS 361. Theory of Computation, <i>20 students</i>	Fall 2007
MATH 211. Linear Algebra, <i>60 students</i>	Spring 2007
CS 237. Microarchitecture, <i>35 students</i>	Fall 2006
MATH 211. Linear Algebra, <i>120 students</i>	Fall 2006

## OUTREACH, COMMUNICATION, AND MENTORING

### Alan Alda Center for Communicating Science Workshop | Princeton University

Professional Development Coordinator	2018
Organized workshop, secured program funding: Langfeld Fund Grant (\$42,610)	

### SPLASH - Teaching and Outreach Program | Stanford University & Princeton University

"The Art of Effective Communication: A Primer on Telling a Good Story"	2013 - 2017
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### Undergraduate Research Mentor

Clara Fannjiang, Stanford University	2014 - 2015
Project: "Fine-Grained fMRI Decoding of Object Categories in Visual Cortex"	

### SAILORS: Stanford University AI Lab Outreach Summer Program

Personal Growth Session Organizer: Scientific Communication	2015
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### Dinner with a Scientist - Community Outreach Program

"Visual Illusions: What You See and What's Really There"	2014 - 2015
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### STAR: Science Teaching through Art

Program Coordinator	2014
Secured program funding: VPGE CEG Grant (\$2,500), VPGE SPICE Grant (\$700)	
Developed and organized workshops, outreach events, and poster sessions	
Presenter, <i>Best Poster Award, Best Presenter Award</i>	2013

## SERVICE

Princeton Neuroscience Institute Professional Development Committee	2017 - present
Stanford University Vision Lab IRB Protocol Director	2015 - 2016

Stanford University Computer Science Graduate Admissions, <i>Ph.D. Student Buddy</i>	2012 - 2014
Williams College Student Mathematics and Statistics Advisory Board (SMASAB)	2007 - 2008
Williams College Computer Science Student Advisory Committee (CoSSAC)	2006 - 2008

Conference Program Committee:

*Pattern Recognition in Neuroimaging (PRNI) 2016*

Volunteer Reviewer - Neuroscience & Psychology:

*Cerebral Cortex*

*Journal of Neuroscience*

*Neuroimage*

*PLOS Computational Biology*

*Pattern Recognition in Neuroimaging (PRNI)*

*Psychonomic Bulletin and Review*

Volunteer Reviewer - Computer Vision & Machine Learning:

*Advances in Neural Information Processing Systems (NIPS)*

*European Conference on Computer Vision (ECCV)*

*IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*