

# Eshin Jolly

Dartmouth College  
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Currently	<b>Postdoctoral Fellow</b> Center for Interacting Minds Center for Cognitive Neuroscience <u>Cosan Lab</u> , Dartmouth College, Hanover, NH PI: Luke J. Chang	2019-
Education	<b>Dartmouth College</b> , Hanover, NH PhD, Cognitive Neuroscience NSF Graduate Fellow Thesis: Social Cognitive Maps: A Relational Account of Person Representation and Memory  <b>University of Rochester</b> , Rochester, NY BA, Brain and Cognitive Science/Psychology Minor, Music Thesis: Testing Domain Specificity: Conceptual Knowledge of Living and Non-living Things	2012-2019  2006-2010
Employment	<b>Scientific Advisor</b> <u>Parsnip.ai</u> Food and Ed-tech startup  <b>Co-Founder &amp; CTO</b> <u>Parsnip.ai</u> Food and Ed-tech startup  <b>PhD Research Intern</b> Microsoft Research, New York City, NY Computational Social Science Group PIs: Duncan Watts & Sid Suri  <b>Lab Manager</b> Harvard University, Cambridge, MA PI: Jason P. Mitchell	2021-  2020-2021  summer 2016  2010-2012
Funding	<b>Postdoctoral Fellow</b> National Science Foundation, Career Award 1848370 (\$886,457, PI: Luke Chang) Neural and computational basis of guilt in decision-making  <b>Graduate Fellow</b>	2019-  2013-2016

National Science Foundation, Graduate Research Fellowship (\$90,000)  
Uncovering the representation of self: A multivariate approach

## Research Experience

**University of Rochester**, Rochester, NY

2009–2010

PIs: Jessica F. Cantlon & Bradford Z. Mahon  
Honors Thesis Student

**Baruch College**, New York City, NY

2008–2010

PI: Jennifer Mangels  
Research Assistant

**Mt Hope Family Center, University of Rochester**, Rochester, NY

2008–2010

PI: Sheree Toth; Mentor: Jack Peltz  
Research Assistant

## Manuscripts In Prep

**Jolly, E.**, Sadhukha, S., Iqbal, M., Molani, Z., Walsh, T.M. & Chang, L.J. (in prep). The structure of social memory.

**Jolly, E.**, Ranger, M.S. & Chang, L.J. (in prep). The neural basis of guilt diffusion in interpersonal harm-minimization.

**Jolly, E.**, Chang, L.J. (in prep). Social cognitive maps: Encoding and reinstatement of neural patterns that reflect beliefs about social relationships.

**Jolly, E.** (in prep). SvelteTurk: An open-source graphical application to simplify data collection via Amazon Mechanical Turk. [[documentation site](#)]

**Jolly, E.**, Smith A., Gangadharan, A.A., Hoidal, A.S. & Chang, L.J. (in prep). Guilt-aversion motivates harm-minimization in surrogate decision-making.

## Under review/revision

**Jolly, E.\***, Cheong, J.H.\*, Xie, T.\* Byrne, S. Kenny, M. & Chang, L.J. (under revision). Py-Feat: Python Facial Expression Analysis Toolbox. [arXiv preprint \[toolbox\]](#)

\*Equal contribution

Gao, X., **Jolly, E.**, Yu, H., Liu, H., Zhou, X., Chang, L. J. (under revision). The hidden cost of receiving favors: A theory of indebtedness. [[bioRxiv preprint](#)]

## Published

**Jolly, E.**, Farrens, M., Greenstein, N., Eisenbarth, H., Reddan, M.C., Andrew, E., Wager, T.D. & Chang, L.J. (2022). Recovering individual emotional states from sparse ratings using collaborative filtering. *Affective Science*. [[Link](#)] [[toolbox](#)] [[data & materials](#)]

2022

**Jolly, E.** & Chang, L.J. (2021). Multivariate spatial feature selection in fMRI. *Social Cognitive and Affective Neuroscience*, 16(8), 795-806. [[Link](#)]

2021

**Jolly, E.** & Chang, L.J. (2021). Gossip drives vicarious learning and facilitates social connections. *Current Biology*, 31, 1-11. [[Link](#)] [[data & materials](#)]  
Coverage: [New York Times](#), [VPR News](#), [PNAS Journal Club](#)

Chang, L.J., **Jolly, E.**, Cheong, J.H., Rapuano, K., Greenstein, N., Chen, P.A. & Manning, J.R. (2021). Endogenous variation in ventromedial prefrontal cortex state dynamics during naturalistic viewing reflects affective experience. *Science Advances*, 7(17), 1-17. [[Link](#)] [[data & materials](#)]

2020

**Jolly, E.\***, Sadhukha, S.\*, Chang, L.J. (2020). Response to Lynch et al: On measuring head motion and effects of head molds during fMRI. *NeuroImage*, 117484. [[Link](#)] [[data & materials](#)]

**Jolly, E.\***, Sadhukha, S.\*, Chang, L.J. (2020). Custom-molded headcases have limited efficacy in reducing head motion during naturalistic fMRI experiments. *NeuroImage*, 117207. [[Link](#)] [[data & materials](#)]

\*Equal contribution

Chen, P. H. A., **Jolly, E.**, Cheong, J. H. & Chang, L. J. (2020). Intersubject representational similarity analysis reveals individual variations in affective experience when watching erotic movies. *NeuroImage*, 116851. [[PDF](#)] [[data & materials](#)]

Chen, P.A., Cheong, J.H., **Jolly, E.**, Elhence, H., Wager, T.D., Chang, L.J. (2019). Socially transmitted placebo effects. *Nature Human Behavior*, 3, 1295-1305. [[PDF](#)] [[data & materials](#)]

2019

**Jolly, E.\***, Tamir, D.I.\*, Burum, B.A. & Mitchell, J.P. (2019). Wanting without enjoying: The social value of sharing experiences. *PLoS One*, 14(4), e0215318. [[PDF](#)] [[data & materials](#)] \*Equal contribution

**Jolly, E.**, & Chang, L.J. (2019). The Flatland Fallacy: Moving Beyond Low Dimensional Thinking. *Topics in Cognitive Science*, 1-22. [[PDF](#)] [[figure & simulation code](#)]

**Jolly, E.** (2018). Pymer4: Connecting R and Python for linear mixed modeling. *Journal of Open Source Software*, 3(31), 862. [[PDF](#)] [[documentation site](#)]

2018

Chang, L. J. & **Jolly E.** (2018). Emotions as computational signals of goal error. In A. Fox, R. Lapate, A. Shackman & R. Davidson (Eds), *The Nature of Emotion* (343-351). Oxford University Press. [[PDF](#)]

Cheong, J.C., **Jolly, E.**, Sul, S. & Chang, L.J. (2017). Computational Models in Social and Affective Neuroscience in Moustafa, A. (Eds), *Computational Models of Brain and Behavior* (229-245). Hoboken, NJ: Wiley. [[Link](#)]

2017

Rane, S.\*, **Jolly, E.\***, Park, A.\*, Jang, H\*. & Craddock, R.C. (2017). Developing predictive biomarkers using whole-brain classifiers: Application to the ABIDE I dataset. *Research Ideas and Outcomes*, 3:e12733. [[PDF](#)].

\*Equal contribution

Moran, J.M., **Jolly, E.** & Mitchell, J.P. (2014). Spontaneous mentalizing predicts the fundamental attribution error. *Journal of Cognitive Neuroscience*, 26(3), 569-576. [[PDF](#)]

2011-2016

Moran, J.M., **Jolly, E.** & Mitchell, J.P. (2012). Social-cognitive deficits in normal aging. *Journal of Neuroscience*, 32(16), 5553-5561. [[PDF](#)]

**Jolly, E.** (2011). Testing domain specificity: Conceptual knowledge of living and non-living things. *The Yale Review of Undergraduate Research in Psychology*, 2, 94-118. [[PDF](#)]

Open Scientific  
Software

2022-Present

[Py-feat](#)


**Core Developer**, [[Documentation](#)] [[Slides](#)] [[Github](#)]

 [Downloads](#)

2020-Present

[Neighbors](#)

**Core Developer**, [\[Documentation\]](#) [\[Github\]](#)

 [Downloads](#)


[SvelteTurk](#)

**Project Author**, [\[Documentation\]](#) [\[Github\]](#)

2017-Present

[Pymer4](#)


**Project Author**, [\[Documentation\]](#) [\[Github\]](#)

 [Downloads](#)

2016-Present

[Nltools](#)

**Core Developer**, [\[Documentation\]](#) [\[Video Talk\]](#) [\[Github\]](#)

 [Downloads](#)

## Talks & Presentations

2022

Spontaneous Neural Representations of Social Relationships in Naturalistic Contexts.

Symposium talk at International Society for Research on Emotion, USC, Los Angeles, CA.

Emotion and Social Perception in Naturalistic Contexts: Perspectives from Affective Computing and Affective Neuroscience.

Symposium organizer at International Society for Research on Emotion, USC, Los Angeles, CA.

Introduction to Facial Expression Analysis with Py-Feat. [\[Slides\]](#)

Talk at Center for Interacting Minds, Dartmouth College, Hanover, NH.

2020

Social Cognitive Maps: A Relational Account of Person Representation and Memory.

Invited talk at Harvard University, Cambridge, MA.

Why Design Abstractions Matters for Analytics Tools: Neuroimaging analysis with Neuro-Learn. [\[Video\]](#)

Symposium talk at Scientific Computing with Python Virtual conference.

Spontaneous Neural Representations of Social Relationships in Naturalistic Contexts.

Symposium talk at Society for Affective Science, San Francisco, CA. (conference cancelled).

Methodological challenges in contemporary fMRI studies.

Invited talk at Neuroimaging Analysis Methods meeting, Princeton University, Princeton, NJ.

2019

Introduction to Git and Github.

Lecture at Methods in Neuroscience Computational Summer School, Dartmouth College, Hanover, NH.

2018

Introduction to Git and Github.

Lecture at Methods in Neuroscience Computational Summer School, Dartmouth College, Hanover, NH.

Introduction to Jupyter Notebooks for Interactive Data Analysis.

Lecture at Methods in Neuroscience Computational Summer School, Dartmouth College, Hanover, NH.

Introduction to functional alignment methods for fMRI.  
Lecture at Sao Paulo School of Advanced Science on Social and Affective Neuroscience. Sao Paulo, Brazil.

2017

Naturalistic approaches towards an understanding of social reasoning and communication.

Invited talk, Stanford University, Stanford, CA.

The social benefits of gossip

Presentation at the New England Research on Decision-Making conference, Brown University, Providence, RI.

Computational tools for neuroscience: Containers and jupyter notebooks.

Lecture at Methods in Neuroscience Computational Summer School, Dartmouth College, Hanover, NH.

Introduction to Singularity: Running containers on a HPC.

Tutorial at Graduate research roundtable workshop, Dartmouth College, Hanover, NH.

Introduction to Git and Github for psychologists.

Presentation at the Reproducible Psychological Science workshop at the Annual Meeting for the Association for Psychological Science, Boston, MA.

Interpersonal dynamics and the inelasticity of social guilt.

Presentation at the Boston Area Moral Cognition Group, Boston, MA.

Interpersonal dynamics and the inelasticity of social guilt.

Presentation at Affectiva, Boston, MA.

Spontaneous impression-formation about parasocial relationships.

Presentation at the Annual Meeting of the Social and Affective Neuroscience Society, Los Angeles, CA.

Introduction to Jupyter notebooks (and why you should love them!).

Tutorial at Brainhack Dartmouth College, Hanover, NH

Research Methods for Conducting Synchronous Online Experiments.

Guest Lecture at Dartmouth College, Hanover, NH.

Contemporary fMRI pre-processing: Introduction to Nipype and Docker.

Tutorial at Dartmouth College, Hanover, NH.

State of the Data: Annual Dartmouth Brain Imaging Center Quality Assurance Report.

Presentation at Dartmouth College, Hanover, NH.

2016

Field experiments on human prosociality using Mechanical Turk.

Presentation at Microsoft Research, New York, NY.

Research Methods for Conducting Synchronous Online Experiments.

Guest Lecture at Dartmouth College, Hanover, NH.

The Social Benefits of Gossip.

Guest Lecture at Dartmouth College, Hanover, NH.

The Social Benefits of Gossip.

Presentation at the Social Brain Sciences Brown Bag series at Dartmouth College, NH.

Posters & Conference  
Proceedings

2021

**Jolly, E. & Chang, L.J. (2021).** Spontaneous Neural Representations of Social Relationships in Naturalistic Contexts.\*

Poster at Social Affective Neuroscience Society meeting (online conference; in-person cancelled due to COVID-19)

\*Winner, SANS Poster Award

2020

**Jolly, E.** (2020). Pymer4: Bringing R's Powerful Mixed-modeling to Python.\*  
Virtual poster at Scientific Computing with Python Virtual Conference. (in-person cancelled).

\*Winner, Scipy Scholarship

2019

**Jolly, E.** & Chang, L.J. (2019). Gossip drives vicarious learning and facilitates robust social connections.

Poster at Social and Affective Neuroscience Society meeting, Miami, FL.

Cheong, J.C., Chen, P.A., **Jolly, E.**, Elhence, H., Wager, T.D., Chang, L.J. (2019). Socially transmitted placebo effects.

Poster at Society for Affective Science meeting, Boston, MA.

2018

**Jolly, E.**, Reddan, M.C., Gianaros, P.J., Manuck, S.M. Chang, L.J., Wager, T.D. (2018). NeuroLIME: A novel tool for explaining the predictions of complex brain models.

Poster at Social and Affective Neuroscience Society meeting, New York, NY.

Reddan, M.C., **Jolly, E.**, Wager, T.D. (2018). NeuroLIME: A novel tool for explaining the predictions of nonlinear neuroimaging classifiers.

Poster at the Organization for Human Brain Mapping meeting, Singapore, Singapore.

Reddan, M.C., **Jolly, E.**, Wager, T.D. (2018). NeuroLIME: A novel tool for explaining the predictions of nonlinear neuroimaging classifiers.

Poster at the Computational and Systems Neuroscience meeting, Denver, CO.

2017

**Jolly, E.** & Chang, L.J. (2017). Gossip drives vicarious learning and facilitates robust social connections.

Poster at the Annual Meeting of the Association for Psychological Science, Boston, MA.

Cheong, J.H., **Jolly, E.** & Chang, L.J. (2017). A window into the mind: A computational approach to measuring emotions in response to naturalistic stimuli.

Poster the Annual Meeting of the Social and Affective Neuroscience Society, Los Angeles, CA.

2016

**Jolly, E.** & Chang, L.J (2016). Groups, gossip and social dilemmas.

Poster at the International Conference on Computational Social Science, Evanston, IL.

2015

**Jolly, E.**, Tamir, D.I. & Mitchell, J.P. (2015). The social value of sharing experiences.\*

\*Winner, SANS Poster Award

Poster at the Annual Meeting of the Social and Affective Neuroscience Society, Boston, MA.

2012

Moran, J.M., **Jolly, E.**, & Mitchell, J.P. (2012). Spontaneous mentalizing supports the fundamental attribution error.

Poster the Annual Meeting of the Cognitive Neuroscience Society, Chicago, IL.

2010

Peltz, J.S. Toth, S.L., Rogosch, F.A., **Jolly, E.**, & Cicchetti, D. (2010). Paternal emotional availability's effects on children's socioemotional functioning in maternal depression contexts.

Poster at the Annual Meeting of the Association for Psychological Science, Boston, MA.

## Awards

2022

Complex Systems Summer School (CSSS)  
Santa Fe Institute

2021

Mistletoe Research Fellowship finalist  
Dartmouth College

2020

Scientific Computing with Python Scholarship Award  
Scipy

Poster Award  
SANS

2019

Kavli Summer Institute in Cognitive Neuroscience  
UC Santa Barbara

Thayer Consulting Case Competition 1st Place  
Thayer School of Engineering, Dartmouth College

Hack Dartmouth Finalist  
Dartmouth College

2018

Hack Dartmouth Best Community Hack  
Dartmouth College

Sao Paulo Summer School on Social and Affective Neuroscience (SPSAN)  
Mackenzie Presbyterian University, Sao Paulo

Graduate Arts and Science Travel Award  
Dartmouth College

PBS Graduate Travel Award  
Dartmouth College

Neukom Institute Travel Award  
Dartmouth College

2017

Graduate Alumni Research Award  
Dartmouth College

PBS Graduate Travel Award  
Dartmouth College

Methods in Neuroscience Computational Summer School  
Dartmouth College

Summer School in Social Neuroscience and Neuroeconomics  
Duke University

Social Affective Neuroscience Society Trainee Data Blitz Award  
SANS

Human Neuroimaging Methods Travel Award OHBM	2016
Hack Dartmouth 2nd Place project award Dartmouth College	
Neurohackweek Summer School University of Washington eScience Institute	
Social Affective Neuroscience Society Poster Award SANS	2015
PBS Graduate Travel Award Dartmouth College	
National Science Foundation Graduate Research Fellowship Dartmouth College	2013-2016
BCS Dept: Highest Honors in research University of Rochester	2010
Wilder-Trustee Scholarship University of Rochester	2006-2010
<b>Teaching</b>	
Methods in Neuroscience Computational Summer School (TA) Dartmouth College	2019
Functional Alignment Techniques in fMRI (Guest Lecturer) Mackenzie Presbyterian University, SPSAN, Sao Paulo, Brazil	2018
Methods in Neuroscience Computational Summer School (TA) Dartmouth College	
Methods in Neuroscience Computational Summer School (TA) Dartmouth College	2017
Online research methods for the experimental study of social behavior (Guest Lecturer) Dartmouth College	
Online research methods for the experimental study of social behavior (Guest Lecturer) Dartmouth College	2016
Social Psychology (Guest Lecturer) Dartmouth College	
Brain Mapping with functional MRI (TA and Lecturer) Dartmouth College	2015
Laboratory in Psychological Science* (TA and Lecturer) *Mentored award winning undergraduate group Dartmouth College	
Experimental Design and Methodology (TA and Lecturer)	2014



Dartmouth College

2013

Laboratory in Psychological Science (TA and Lecturer)  
Dartmouth College

2011

Introduction to MATLAB for Behavioral Research (ad-hoc workshop)  
Harvard University

Mind Perception (ad-hoc workshop)  
Harvard University

## Mentorship

2021-2022

Maxwell Ranger '22  
Honors Thesis  
Dartmouth College

2017-2021

Maryam Iqbal '21  
Presidential Scholar/Honors Thesis  
Dartmouth College

2020-2021

Liza Begunova '21  
Honors Thesis  
Dartmouth College

2019-2020

Max Farrens '20  
Full-time Research Assistant  
Dartmouth College

2017-2019

Nathan P. Greenstein '19  
Presidential Scholar  
Dartmouth College

Sushmita Sadhukha '18  
Full-time Research Assistant  
Dartmouth College

2015-2018

Arati A. Gangadharan '18  
Honors Thesis  
Dartmouth College

2015-2017

Hirsh Elhence '17  
Presidential Scholar  
Dartmouth College

## Technical Skills

### Programming Languages

Python, Javascript, Matlab, R, Bash

### Frontend Web Development

HTML, CSS, Svelte, Vue

### Backend/Fullstack/App Development

Node, Express, Meteor, MongoDB, Firebase, Flask, Electron

### Stimulus Presentation

Psychopy, Psychophysics toolbox, E-prime, Presentation

**Data Analysis**

Scientific-Python, Statsmodels, Scikit-learn, Lme4

**Neuroimaging Analysis**

FSL, AFNI, SPM, Nipype, Nilearn

**Data Visualization**

Seaborn/Matplotlib, D3, Dash/Plotly, ggplot

**Dev Ops**

Git/Github, TravisCI, Tox, Pytest, Moab-Torque

**Professional Activities****Reviewer**

Cerebral Cortex, Neuroimage, Human Brain Mapping, SCAN, Neuropsychologia, Cognition and Emotion, JESP, PLoS One, GigaScience, JOSS

ad-hoc: Nature Communications, SIGCHI, Frontiers in Psych, JPSP

**Society Memberships**

Social and Affective Neuroscience Society, Society for Affective Science, Organization for Human Brain Mapping, Cognitive Neuroscience Society, Society for Personality and Social Psychology

**Leadership & Community**

2022-

**Technical Lead**

Rural Internet Project

Code for Upper Valley (Local C4A Brigade), Bradford, VT

2019-2022

**Committee Member**

Inclusivity, Diversity, and Culture Advisory Committee

Dartmouth College, Hanover, NH

**Project Manager**

Rural Internet Project

Code for Upper Valley (Local C4A Brigade), Bradford, VT

2018-2020

**VP of Client Outreach**

Dartmouth Graduate Consulting Group, Hanover, NH

2020-2021

**Board Member**

Dartmouth College Postdoctoral Association, Hanover NH

2017-2020

**Co-Founder**

Line@ Project

Dartmouth College, Hanover, NH

2017

**Organizing committee member**

Dartmouth Brainhack, Hanover, NH

2014

**Station Leader**

GWISE Science day for local middle schools

Dartmouth College, Hanover, NH

2013-2015

**Primary Organizer**

Social Brain Sciences Symposium talk series  
Dartmouth College, Hanover, NH

**Graduate Representative**

Social Area Graduate Student Representative  
Dartmouth College, Hanover, NH

2019-

**Freelance Software Developer**

Web and Desktop Application Development

**Private Tutor**

Introductory data analysis with Python

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Last updated: November 2022