

# Ruijia(Regina) Cheng

[ruc019@ucsd.edu](mailto:ruc019@ucsd.edu) | [reginachangzhou.github.io](https://reginachangzhou.github.io)

## Education

2014.9 – present     University of California, San Diego (UCSD)  
**BS Cognitive science with a specialization in computation** (expected June 2018)  
**BS Mathematics/applied science** (expected June 2018)  
 Minor: Interaction Design  
 GPA: 3.88/4.0

## Publication

### Working paper

**Cheng, R.**, De Castro, J., Dow, S., Chan, J. (2017) An exploratory study of problem framing in distributed collaborative design *working paper in 2018 ACM GROUP conference*

### Conference Poster Presentation

Singh, F., Smith, A., Dudeck, N., Herrera, E., Lee, J., Yang, Z., **Cheng, R.**, Pineda, J. (2016) A pilot study to assess the effects of EEG-Gamma neurofeedback on working memory in schizophrenia patients. *Poster presented at Society for Neuroscience(SfN) 2016 annual conference*

## Research Experience

### UCSD Protolab

2016.11-2017.10     **Problem framing project** *advised by prof. Steven Dow, dr. Joel Chan(CMU)*  
 Studied effects of problem framing on distributed collaborative design

- Designed surveys for frame collection and evaluation
- Coded, analyzed and designed k-means clustering studies on frame evaluation
- Aided in designing experiments and interface for crowd idea generation
- Designed and ran statistical and qualitative analysis on data collected from real users
- **Wrote full working paper (See publication section)**

2017.8 – 2017.9     **Design critique project** *advised by prof. Steven Dow, Adam Mekrut*  
 Studied effects of customized v.s vicarious feedbacks on visual design tasks

- Designed and ran experiments on various experimental conditions

### UCSD Design Lab

2017.7 – present     **Narrative scientific computing project** *advised by prof. Jim Hollan, Adam Rule*  
 Studied narrative feature in scientific data analysis on large scale of Jupyter notebooks

- **Acknowledged in paper Exploration and Explanation in Computational Notebooks (Under review for CHI 2018)**
- Collected and organized large-scale notebooks and repository information from GitHub
- Mined themes among 200, 000 repositories using python Natural Language Toolkit
- Coded, analyzed and summarized narrative features in 250 notebooks and repositories
- Developing Jupyter notebook extensions to improve scientific communication

2017.3 – 2017.6     **Jupyter notebook for education project** *advised by prof. Jim Hollan, Adam Rule*

Studied challenges of using Jupyter notebooks for data science education in real-life class

- **Submission aimed for CHI 2018 Student Research Competition (Jan. 2018)**
- Designed and conducted interviews; analyzed observational data using affinity diagrams
- Quantitatively analyzed Jupyter Educational Survey data provided by the Jupyter team
- Proposed design spaces and wrote report
- Developed JavaScript extension for cleaning up import history on Jupyter Notebook

## UCSD Cognitive Neuroscience Lab

2016.1- present     **EEG neurofeedback project** *advised by prof. Jaime Pineda, dr. Fiza Singh*

Studied Effects of EEG-Gamma neurofeedback on working memory in schizophrenia (SCZ) patients

• **Adjusted machine learning models; designed and executed classification experiments on EEG data collected from SCZ patients**

- Ran neurofeedback training sessions and recorded EEG data on SCZ patients
- Performed preprocessing, ICA and power analysis on EEG data
- Delivered guest presentation at prof. Virginia De Sa's lab

## Programming Experience

---

Python, Matlab, R, JavaScript, HTML, CSS, Java

## Skills

---

**Design:** interview and observation; storyboarding; rapid prototyping; heuristic evaluation; user testing; A/B testing using Google Analytics

**Computation:** Bayesian; K-means; spectral clustering; KNN; PCA; LDA; regressions; EM; logistic regression; SVM; random forest; multilayer perceptron; convolutional neural network

## Projects

---

**Plug-n-talk ios app prototype:** a cheap alternative to hearing aid *UCSD Design Competition for senior citizens*

**Classifier of real-life photos and CG pictures:** application of multiple convolutional neural networks

**Dine-with-me web app prototype:** a geographical social network app on finding lunch buddies on campus

**PRO web app prototype:** a personal productivity tracking tool

## Recognitions

---

2017	UCSD Frontiers of Innovation Scholars Program (FISP) funding <i>PI: Fiza Singh</i>
2017, 2016, 2015	UCSD Revelle College Honor Student
2016.8	Discovery Lab Global 2016 "Challenge Coin" for outstanding interns
Every quarter	UCSD Provost Honor

## Internship

---

2016.2-2016.8	Discovery Lab Global 2016 research intern Developed EEG based BCI "MindMap": 3D printed visualization of brain states
---------------	--

## Organizations

---

Webmaster of 2016 UCSD International Cognitive Science Conference Committee  
Alumni of 2014 – 2015 UCSD Revelle College Emerging Leaders Program