Ruijia(Regina) Cheng

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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 *PI: Fiza Singh*
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