**Ning Mei**

**Basque Center on Cognition, Brain and Language – David Soto Group**

**n.mei@bcbl.eu or nm2241@nyu.edu**

**Website: https://github.com/nmningmei**

**Open Science Framework: https://osf.io/chav7/**

## EDUCATION

2018 (in progress)

Basque Center on Cognition, Brain, and Language

P.h.D in Cognitive Neuroscience

2016

New York University, New York,

NY M.A in Psychology (General)

2014

Arizona State University, Tempe, AZ

B.A. in Psychology (minor in Statistics)

2012

Guangzhou University of Traditional Chinese Medicine, Guangzhou,

China B.S. in Applied Psychology

## PUBLICATIONS and CONFERENCE POSTERS

**Posters**

Teng, X., Mei, N., Tian, X., & Poeppel, D. (2016). Auditory temporal windows revealed by locally reversing Mandarin speech. *Society for Neurobiology of Language,* Poster (co-first-author), Cognitive Neuroscience Society, 2016

Kim, T., Mei, N., Poeppel, D., & Flinker, A. (2015). A new acoustic space for hemispheric asymmetries. *Society for Neurobiology of Language,* Poster (co-first-author), Society for Neuroscience, 2015

Mei, N., Sheikh, U., Santana, R., & Soto, D. (2019, September). How the brain encodes meaning: Comparing word embedding and computer vision models to predict fMRI data during visual word recognition. Cognitive *Computational Neuroscience Conference*, Berline, Germany.

Mei, N., & Soto, D. (2019, September). Predicting human prospective beliefs and decisions to engage using multivariate classification analyses of behavioural data. *Cognitive Computational Neuroscience Conference*, Berline, Germany.

**Publications**

Mei, N., Grossberg, M. D., Ng, K., Navarro, K. T., & Ellmore, T. M. (2017). Identifying sleep spindles with multichannel EEG and classification optimization. *Computers in biology and medicine*, 89, 441-453.

Ellmore, T. M., Reichert, C. P., Ng, K., & Mei, N. (2017). Visual Continuous Recognition Reveals Widespread Cortical Contributions to Scene Memory. *bioRxiv*, 234609.

Mei, N., Grossberg, M. D., Ng, K., Navarro, K. T., & Ellmore, T. M. (2018). A high-density scalp EEG dataset acquired during brief naps after a visual working memory task. *Data in brief*, 18, 1513-1519. doi: 10.1016/j.dib.2018.04.073

Ning et al., (under review). Dichotic listening effect of Mandarin tones.

Mei, N., Rankine, S., Olafsson, E., & Soto, D. (2019). Predicting human prospective beliefs and decisions to engage using multivariate classification analyses of behavioural data. *bioRxiv*, 607069.

## AWARDS

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|---|---|
| Arizona State University, Dean's list | 2013, 2014 |
| Data Science RoAD-Trip (fellowship awarded) | 2016 |

## Research and Internships

Spring 2018 – present

**David Soto lab**

*Doctoral researcher*

Running psychophysics, fMRI and M/EEG experiments, data analyses Ongoing project: Discovering the properties of unconscious representations in the human brain.

Fall 2014 – Spring 2018

**David Poeppel lab**

*MA research assistant*

Running psychophysics experiments, MEG experiments, data analysis
Ongoing project: Investigating hemispheric asymmetry in perceiving Mandarin Tones, in conditions of hums or lexical tones.
github.com/nmningmei/Dichotic-Listening

Spring 2015 – Fall 2016

**Catherine Good lab**

*MA research assistant*

Experimental subject testing, data collection, data analysis

Data analysis on how sense of belonging in math moderating

self-estimation in different confidence

levels Spring 2016 – Spring 2018

**Timothy Ellmore lab**

*MA research assistant*

Develop python/Matlab Input/Output interacting scripts/protocol for EEG data processing

Selecting features to detect target brain wave patterns (i.e. spindles, k-complex, sleeping stages) in the signal

Automatic pipeline of non-supervised models to detect spindles

(https://osf.io/fc3u5/; github.com/nmningmei/modification-pipelines)

Fall 2016 – Fall 2018
**Data Science RoAD-Trip (Fund awarded, $4000)**

- The RoAD-Trip Joint Data Science Plan (Mentor: Gaurav Pandey)
- Implementing machine learning algorithms to detect target brain wave patterns (i.e. spindles, k-complex)
- Implementing machine learning algorithm to classify sleeping stages within subjects

  (github.com/nmningmei/Spindle_by_Graphical_Features)

Spring 2017 – Spring 2018

**Denis Pelli lab**

*Research assistant*

Study of noise dynamic in visual grouping effect

Spring 2014

**American Cancer Society Cancer Prevention Study – 3**
*Volunteer, Research assistant*

Recruiting subjects, social media research

Fall 2012-Summer 2014

**ASU Changemaker center, Tempe, AZ**

*Volunteer*

Creating communities of support around new solutions/ideas

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## Working experience

Fall 2012 to present

**Varsity Tutor**

*Tutor*

Multivariate Calculus, Linear Algebra, Trigonometry (high school and college levels), Statistics (i.e. research methods, analysis methods, simulation, signal detection theory), Mandarin, Programming data analysis

March 2013 to present

**Translator**, MCC Translation, Phoenix, AZ

## SKILLS and CERTIFICATIONS

**Computer Skills:**

**Excellent – Python**

Parametric tests, Nonparametric tests, Factorial analysis, Principal Component Analysis, Bayesian Modeling, Cross Validation Model Evaluation, Data Visualization, Lambda Functions, Extensions of Python such as MNE-python (specialize in EEG, MEG data analysis), Nipype (specialize in functional MRI preprocessing graph), Sci-kit learn, Pandas, Theano, Tensorflow and extensions (Deep Neural Network Modeling), Pytorch and extensions (Recurrent neural network decoding), and PyMC3 (probabilistic modeling), Import and export excel, matlab, SPSS, and SAS files to Pythonic data frames. Extract, transform, and load datasets, Psychophysics experiment via PsycoPy,

Excellent – R

Parametric tests, Nonparametric tests, Factorial Analysis, Principal Component Analysis, probabilistic computation Shiny – interactive graphs

ggplot, data visualization

Good – Letax Editor

Equations and special effects in presentation slides, posters

Beginner – Julia

Julia ikernel interacting with Jupyter projects

**Skills:**

Courses taken: Calculus/Analytic Geometry I – III, Probability, Mathematical statistics, Simulation and Data Analysis, Mathematical Tools for Psychology and Neuroscience

**Statistics Skills:**

Parametric statistics, Non-parametric statistics, Factorial Analysis, Principal Component Analysis, Independent Component Analysis, multivariate calculus, Least square regression, Multivariate regression, Stepwise hierarchical regression, Logistic regression, Bayesian Inference, Machine Learning Classification (python sci-kit learn, Theano, tensorflow, pytorch).

**Language:**

- Mandarin
- Cantonese, mother tongue
- Englis

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## Current Project

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Decoding mental states of living vs. non-living words through fMRI scans

- https://github.com/nmningmei/BOLD5000_autoencoder;
- https://github.com/nmningmei/mask_image_FOREST;
- https:/github.com/nmningmei/METASEMA_encoding_model;
- https:/github.com/nmningmei/fMRI_decoding_benchmarking;