Yuanning Li

Curriculum Vitae

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Education

2014–2018   **Ph.D.**, *Carnegie Mellon University, Pittsburgh, PA*.
Joint Neural Computation and Machine Learning Ph.D. program
Dissertation: Neural dynamics and interactions in the human ventral visual pathway
Committee: Avniel Singh Ghuman (co-advisor), Max G. G'Sell (co-advisor),
Robert E. Kass, Christopher I. Baker

2011–2013   **M.S.**, *Carnegie Mellon University, Pittsburgh, PA*.
Electrical and Computer Engineering

2007–2011   **B.S.**, *Beihang University (BUAA), Beijing, China*.
Electrical Engineering, School of Advance Engineering (Honors College)

Work Experience

2019–   **Postdoctoral Scholar**, *University of California*, San Francisco, CA.
Department of Neurological Surgery/Center for Integrative Neuroscience
Advisor: Edward Chang

2014–2018   **Graduate Research Assistant**, *Carnegie Mellon University*, Pittsburgh, PA.
Center for the Neural Basis of Cognition/Machine Learning Department
Advisors: Avniel Ghuman and Max G'Sell

2013–2018   **Graduate Research Assistant**, *University of Pittsburgh*, Pittsburgh, PA.
School of Medicine, Department of Neurological Surgery
Advisor: Avniel Ghuman

Awards and Honors

2020   Outstanding Scholars in Neuroscience Award Program (OSNAP), NIH

2018   Trainee Professional Development Award (TPDA), Society for Neuroscience (SfN)

2018   Fellow of Kavli Summer Institute in Cognitive Neuroscience, Lake Tahoe, CA

2015   Fellow of Summer Institute of Cognitive Neuroscience, Santa Barbara, CA

2015   Multimodal Neuroimaging Training Program (MNTP, NIH training grant), CMU-Pitt

2014   R. K. Mellon Presidential Fellowship, CMU

2012   Carnegie Institute of Technology Dean's Fellowship, CMU

2010   Meritorious Winner, Mathematical Contest in Modeling (MCM), Consortium for Mathematics and Its Applications, USA

Publications

Preprints

2020 **Yuanning Li**, Claire Tang, Junfeng Lu, Jinsong Wu, and Edward Chang. An auditory cortex neural code for linguistic pitch. (Manuscript submitted for review)

2020 Junfeng Lu*, **Yuanning Li*** (equal contributions), Jinsong Wu, and Edward Chang. The control of lexical tone production in human laryngeal motor cortex. (Manuscript in preparation for submission)

2018+ Peter Elliott, Matthew Boring, **Yuanning Li**, R. Mark Richardson, Avniel Singh Ghuman, Max G'Sell. Shrinkage Classification for Overlapping Time Series: An interpretable method for mapping stimulus-differentiated evoked response (Submitted, preprint doi: `https://doi.org/10.1101/733279`)

2018+ Matthew Boring, Elizabeth Hirshorn, **Yuanning Li**, Michael Ward, R. Mark Richardson, Julie Fiez, Avniel Singh Ghuman. The left midfusiform gyrus interacts with early visual cortex and the anterior temporal lobe to support word individuation (preprint doi: `https://doi.org/10.1101/411579`)

Published journal articles

2020 **Yuanning Li**, Michael Ward, R. Mark Richardson, Max G'Sell, and Avniel Singh Ghuman. Endogenous activity modulates neural tuning and predicts perceptual behavior. *Nature Communications*, 11, 4014 (2020). doi: `10.1038/s41467-020-17729-w`

2018 **Yuanning Li**, R. Mark Richardson, and Avniel Singh Ghuman. Posterior Fusiform and Midfusiform Contribute to Distinct Stages of Facial Expression Processing. *Cerebral Cortex*. 29, no. 7 (2018): 3209-3219. doi: `10.1093/cercor/bhy186`

2017 **Yuanning Li**, R. Mark Richardson, and Avniel Singh Ghuman. Multi-Connection Pattern Analysis: decoding the representational content of neural communication. *NeuroImage*. 162 (2017) pp. 32-44. doi: `10.1016/j.neuroimage.2017.08.033`

2017 Hassan Albalawi, **Yuanning Li**, and Xin Li. Training Fixed-Point Classifiers for On-Chip Low-Power Implementation. *ACM Transactions on Design Automation of Electronic Systems (TODAES)*. 22, no. 4 (2017): 69. doi: `10.1145/3057275`

2016 Elissa Aminoff, **Yuanning Li**, John Pyles, Michael Ward, R. Mark Richardson, Avniel Singh Ghuman. Associative hallucinations result from stimulating left ventral temporal cortex. *Cortex*. 83, (2016): 139-144. doi: `10.1016/j.cortex.2016.07.012`

2016 Elizabeth Hirshorn*, **Yuanning Li*** (equal contributions), Michael Ward, R. Mark Richardson, Julie Fiez, and Avniel Singh Ghuman. Decoding and disrupting left midfusiform gyrus activity during word reading. *Proceedings of the National Academy of Sciences*. 113, no. 29 (2016): 8162-8167. doi: `10.1073/pnas.1604126113`

2014 Avniel Singh Ghuman, Nicolas Brunet, **Yuanning Li**, Roma Konecky, John Pyles, Shawn Walls, Vincent Destefino, Wei Wang, and R. Mark Richardson. Dynamic encoding of face information in the human fusiform gyrus. *Nature Communications*. 5:5672 (2014), doi: `10.1038/ncomms6672`

2014   Hassan Albalawi, **Yuanning Li**, and Xin Li. Computer-aided design of machine learning algorithm: training fixed-point classifier for on-chip low-power implementation. *Proceedings of the 51st ACM/EDAC/IEEE Design Automation Conference (DAC)*. 2014. doi: `10.1145/2593069.2593110` (acceptance rate: 174/787 = 22.1%)

Conferences and Workshops

Contributed talks

2018   **Yuanning Li**, Michael Ward, R. Mark Richardson, Max G G'Sell and Avniel Singh Ghuman, Endogenous pre-stimulus activity modulates category tuning in ventral temporal cortex and influences behavior, *48th Annual Meeting of Society for Neuroscience (SfN 2018)*, San Diego, CA, 2018

2018   **Yuanning Li**, Michael Ward, R. Mark Richardson, Max G G'Sell and Avniel Singh Ghuman, Endogenous oscillatory activity modulates category tuning in ventral temporal cortex, *Vision Sciences Society Eighteenth Annual Meeting (VSS 2018)*, St. Pete Beach, FL, 2018.

2018   Matthew Boring, Edward Silson, **Yuanning Li**, Michael Ward, Christopher Baker, R. Mark Richardson, and Avniel Singh Ghuman, Interdigitation of words and faces in the ventral visual stream: reevaluating the spatial organization of category selective cortex using intracranial EEG, *Vision Sciences Society Eighteenth Annual Meeting (VSS 2018)*, St. Pete Beach, FL, 2018. (Talk given by Matthew Boring)

2016   **Yuanning Li**, Michael Ward, Witold Lipski, R. Mark Richardson, and Avniel Singh Ghuman, Neurodynamics of expression coding in the core face network, *46th Annual Meeting of Society for Neuroscience (SfN 2016)*, San Diego, CA, 2016

Poster presentations

2019   **Yuanning Li**, Claire Tang, Junfeng Lu, Jinsong Wu, and Edward Chang, Lexical tone processing in human superior temporal gyrus, *49th Annual Meeting of Society for Neuroscience (SfN 2019)*, Chicago, IL, 2019

2018   **Yuanning Li**, Michael Ward, R. Mark Richardson, Max G G'Sell, and Avniel Singh Ghuman, Endogenous pre-stimulus activity modulates category tuning in ventral temporal cortex and influences perceptual behavior, *2018 Conference on Cognitive Computational Neuroscience*, Philadelphia, PA, 2018

2017   **Yuanning Li**, Michael Ward, Witold Lipski, R. Mark Richardson, and Avniel Singh Ghuman, Neurodynamics of expression coding in the core face network, *Vision Sciences Society Seventeenth Annual Meeting (VSS 2017)*, St. Pete Beach, FL, 2017. doi: `10.1167/17.10.821`

2016   **Yuanning Li**, and Avniel Singh Ghuman. Distributed information processing across OFA and FFA represents individual face identities, *Vision Sciences Society Sixteenth Annual Meeting (VSS 2016)*, St. Pete Beach, FL, 2016. doi: `10.1167/16.12.1232`

2016   Avniel Singh Ghuman, **Yuanning Li**, Elizabeth Hirshorn, Julie Fiez, and R. Mark Richardson. Information processing dynamics in human category-selective fusiform gyrus, *Vision Sciences Society Sixteenth Annual Meeting (VSS 2016)*, St. Pete Beach, FL, 2016. doi: `10.1167/16.12.254`

2015 **Yuanning Li** and Avniel Singh Ghuman. Multi-connection pattern analysis (MCPA): multivariate discriminant analysis of functional connectivity between neural populations, *45th Annual Meeting of Society for Neuroscience (SfN 2015)*, Chicago, IL, 2015

2015 Elissa Aminoff, **Yuanning Li**, John Pyles, Michael Ward, Gena Ghearing, R. Mark Richardson, Avniel Singh Ghuman. Stimulating Associations, *45th Annual Meeting of Society for Neuroscience (SfN 2015)*, Chicago, IL, 2015

2015 **Yuanning Li**, Elizabeth Hirshorn, Michael Ward, Roma Konecky, Ellyanna Kessler, Breana Gallagher, R. Mark Richardson, Julie Fiez, and Avniel Singh Ghuman. Decoding the temporal dynamics of left mid-fusiform gyrus activity during word reading, *Seventh International Workshop on Statistical Analysis of Neuronal Data (SAND7)*, Pittsburgh, PA, 2015

2014 **Yuanning Li**, Nicolas Brunet, Ellyanna Kessler and Avniel Singh Ghuman. Spatiotemporal analysis of human face individuation. *19th International Conference on Biomagnetism (BIOMAG)*, Halifax, Canada, 2014

Invited Talks

2017 Young Scholar Seminar Series, East China Normal University, Shanghai, China

Journal Reviewer

Ad-hoc Reviewer IEEE Transactions on Neural Systems & Rehabilitation Engineering (TNSRE), IEEE Journal of Biomedical and Health Informatics (JBHI), PLOS ONE, NeuroImage, Journal of Neurophysiology, Science Advances

Teaching

Spring 2018 **Teaching Assistant**, *Carnegie Mellon University*, Pittsburgh, PA.
10-708   Probabilistic Graphical Models (Machine Learning Ph.D. core course)

Summer 2016 **Teaching Assistant**, *Center for the Neural Basis of Cognition, CMU-Pitt*.
Summer course for the undergraduate program in neural computation (uPNC)

Spring 2013 **Teaching Assistant**, *Carnegie Mellon University*, Pittsburgh, PA.
18-202   Mathematical Foundations of Electrical Engineering (ECE undergraduate course)

Programming Skills

Proficient in Python, MATLAB, LaTeX

Capable in C, C++, Java, R

References

Edward F. Chang, *edward.chang@ucsf.edu*.
Professor, University of California San Francisco

Avniel Singh Ghuman, *ghumana@upmc.edu*.
Associate Professor, University of Pittsburgh

Max G. G'Sell, *mgsell@andrew.cmu.edu*.
Assistant Professor, Carnegie Mellon University

R. Mark Richardson, *richardsonrm@upmc.edu*.
Associate Professor, Harvard Medical School

Robert E. Kass, *kass@stat.cmu.edu*.
Professor, Carnegie Mellon University

Julie A. Fiez, *fiez@pitt.edu*.
Professor, University of Pittsburgh