

Acer Yu-Chan Chang

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Current Position

Jan, 2017 - Present

Senior Researcher

Araya Inc., Japan

Research Interests

- Scientific approaches to consciousness research
 - Information theoretical research on consciousness
 - Psychophysical research on consciousness
 - Neurophysiological research on consciousness
- Artificial general intelligence

Education

Sep, 2012 – 2016

PhD.

Department of Informatics, University of Sussex, UK

Supervisors:

Anil Seth Department of Informatics,
University of Sussex, UK

Ryota Kanai Department of Psychology,
University of Sussex, UK

Jul, 2007 - Jul, 2009

M.S.

Institute of Neuroscience, National Yang-Ming
University, Taiwan

Thesis:

*Early Influence from Numerical Magnitude on Temporal
Processing*

Supervisors:

Denise Hsien Wu Institute of Cognitive Neuroscience,
National Central University, Taiwan
Wen-Jui Kuo Institute of Neuroscience, National
Yang-Ming University, Taiwan

Sep, 2002 - Jun, 2006 **B.S.**
Department of Engineering Science, National Cheng
Kung University, Taiwan

Awards and Honors

- Government scholarships for study abroad (GSSA), Taiwan 2011
- School of Engineering and Informatics PhD Scholarship, University of Sussex, UK, 2012-2015
- Scholarship funded by Sackler Centre for Consciousness Science, University of Sussex, UK, 2012-2015
- Best Poster Award, JSP CREST Meeting in Osaka 2019

Research Activities

- Chief organizer of Combining Information theoretic Perspectives on Agency (CIPA) workshop, January 28th - 29th 2020, Tokyo, The University of Tokyo, Japan.

Research Experience

Mar, 2009 – July, 2012 Research Assistant
MEG lab, Institute of Physics, Academia Sinica, Taiwan
Jul, 2007 - Mar, 2009 Research Assistant
Concept and Language Lab, Institute of Cognitive
Neuroscience, National Central University, Taiwan

Teaching and Mentoring Experience

Sep, 2012 - Sep, 2015 Associate Tutor

Department of Informatics

University of Sussex, UK

- Sep,2013 - Aug,2014 Mentored master student, Ned Wilson Eames, with Dr.
Ryota Kanai in University of Sussex Sussex
- Sep,2012 - Aug,2013 Mentored master student, Sara Souissi, with Dr. Ryota
Kanai in University of Sussex Sussex

Publications

- Chang, A. Y. C., Biehl, M., Yu, Y., & Kanai, R. (2020). Information Closure Theory of Consciousness. *Frontiers in Psychology*.
<https://doi.org/10.3389/fpsyg.2020.01504>
- Chang, A. Y. C., Biehl, M., Yu, Y., & Kanai, R. (2019). Information Closure Theory of Consciousness. *ArXiv Preprint ArXiv:1909.13045*.
- Yu, Y., Chang, A. Y. C., & Kanai, R. (2019). Boredom-Driven Curious Learning by Homeo-Heterostatic Value Gradients. *Frontiers in Neurorobotics*, 12.
<https://doi.org/10.3389/fnbot.2018.00088>
- Schwartzman, D. J., Schartner, M. M., Ador, B. B., Simonelli, F., Chang, A. Y.-C., & Seth, A. K. (2019). Increased spontaneous EEG signal diversity during stroboscopically-induced altered states of consciousness. *BioRxiv*, 511766.
<https://doi.org/10.1101/511766>
- Kanai, R., Chang, A. Y.-C., Yu, Y., Magrans de Abril, I., Biehl, M., & Guttenberg, N. (2019). Information generation as a functional basis of consciousness. *Neuroscience of Consciousness*, 2019(1), niz016.
- Ward, J., Rothen, N., Chang, A. Y.-C., & Kanai, R. (2017). The structure of inter-individual differences in visual ability: Evidence from the general population and synaesthesia. *Vision Research*, 141, 293–302.
<https://doi.org/10.1016/j.visres.2016.06.009>
- Chang, Acer Y.-C., Seth, A. K., & Roseboom, W. (2017). Neurophysiological signatures of duration and rhythm prediction across sensory modalities. *BioRxiv*.
<https://doi.org/10.1101/183954>
- Chang, A. Y.-C., Schwartzman, D. J., VanRullen, R., Kanai, R., & Seth, A. K. (2017). Visual Perceptual Echo Reflects Learning of Regularities in Rapid Luminance Sequences. *The Journal of Neuroscience*, 37(35), 8486–8497.
<https://doi.org/10.1523/jneurosci.3714-16.2017>

- Schauer, G., Chang, A. Y.-C., Schwartzman, D., Rae, C. L., Iriye, H., Seth, A. K., & Kanai, R. (2016). Fractionation of parietal function in bistable perception probed with concurrent TMS-EEG. *Scientific Data*, 3, 160065. <https://doi.org/10.1038/sdata.2016.65>
- Hung, Y.-H., Pallier, C., Dehaene, S., Lin, Acer Y.-C. Chang, Tzeng, O. J.-L., & Wu, D. H. (2015). Neural correlates of merging number words. *NeuroImage*, 122, 33–43. <https://doi.org/10.1016/j.neuroimage.2015.07.045>
- Chang, A. Y.-C., Kanai, R., & Seth, A. K. (2015). Cross-modal prediction changes the timing of conscious access during the motion-induced blindness. *Consciousness and Cognition*, 31, 139–147. <https://doi.org/10.1016/j.concog.2014.11.005>
- Chang, A. Y.-C., Tzeng, O. J. L., Hung, D. L., & Wu, D. H. (2011). Big Time Is Not Always Long. *Psychological Science*, 22(12), 1567–1573. <https://doi.org/10.1177/0956797611418837>

Conference Presentations

- Chang, A. Y.-C., Yu, Y., & Kanai, R. (2018). A Neural Coarse Graining Theory of Consciousness. *Association for the Scientific Studies of Consciousness (ASSC 22)*.
- Yu, Y., Chang, A. Y.-C., & Kanai, R. (2018). Machine Cognitive Set-Shifting. *Association for the Scientific Studies of Consciousness (ASSC 22)*.
- Chang, Acer Yu-Chan, Kanai, Ryota, & Seth, Anil. (2013). *Cross-modal prediction changes the timing of conscious access during the motion-induced blindness*. . Talk presented at the The Seventeen Annual Meeting of the Association for the Scientific Study of Consciousness, San Diego, USA.
- Chang, A. Y.-C., Rufin VanRullen, Ryota Kanai, and Anil K. Seth. (2015) “Unconscious Temporal Predictive Processing Revealed by 10 Hz Perceptual Echo.” presented at the 19th annual meeting of the Association for the Scientific Study of Consciousness, Paris
- Chang, A. Y.-C., Wu, S.-W, Tzeng, O. J.-L., & Wu, D. H. (2012). *The neuromagnetic responses elicited by dynamic value computations during decision making*. Paper presented at the 18th Annual Meeting of the Organization for Human Brain Mapping, Beijing, China.
- Wu, D. H., Lin, W.-X., Chang, A. Y.-C., & Tzeng, O. J.-L. (2011). *Pitch Height Independently Modulates Perceived Time Durations*. Paper presented at the 52nd Annual Meeting of Psychonomic Society, Seattle, USA.

- Chang, A. Y.-C., Liang, W.-K., LIN, C.-Y., Tzeng, O. J.-L., & Wu, D. H. (2010). *The brain activity associated with time perception: A comparison between MEG and EEG signals*. Paper presented at the Society for Neuroscience Meeting.
- Chang, A. Y.-C., Liang, W.-K., Tzeng, O. J.-L., & Wu, D. H. (2010). *A Comparison Between MEG and EEG Signals in a Time Discrimination Task*. Paper presented at the 2010 Frontiers in Neuroscience From Genes to Cognition.
- Chang, A. Y.-C., Lin, W.-S., Tzeng, O. J. L., Hung, D. L., & Wu, D. H. (2010, November). *The Influence from Pitch Height to Subjective Perception of Duration*. Paper presented at the 49th Annual Meeting of Taiwanese Psychological Association, Chiayi, Taiwan.
- Wu, D. H., Chang, A. Y.-C., Hung, D. L., & Tzeng, O. J. L. (2010). *Neurophysiological Evidence of Numerical Influence on Subjective Perception of Time*. Paper presented at the 16th Annual Meeting of the Organization for Human Brain Mapping.
- Chang, A. Y.-C., Tzeng, O. J.-L., Hung, D. L., & Wu, D. H. (2009). *The Influence of Numerical Magnitude on Perception and Motor Reproduction of Time*. Paper presented at the 16th Annual Cognitive Neuroscience Society Meeting.