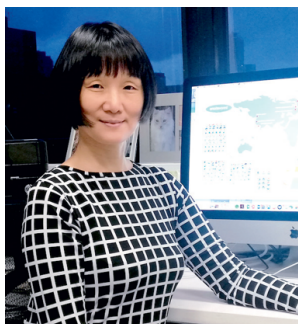


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## AKAYSHA TANG, PHD



**Founder & CEO**  
**Neural Dialogue**  
 Shenzhen, PRC

**Full Professor**  
**The University of Hong Kong**  
 Director of The Laboratory of  
 Neuroscience for Education  
**Tenured Associate Professor**  
**of Psychology and**  
**Neuroscience**  
**The University of New Mexico**  
 Director for Developmental  
 Cognitive Neuroscience Lab  
 (animal models)  
 Director for EEG-Based  
 Source Imaging Lab (human  
 research).  
**Cognitive Neuroscience**  
**Program Director**  
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*We shall not cease  
 from exploration and  
 the end of all our exploring  
 Will be to arrive  
 where we started  
 and know the place  
 for the first time*

- TS Eliot

### Education

**Harvard University**, Cambridge, MA, USA — PhD, 1995. Psychology/  
 Neuroscience. *GABAb receptor mediated input-selective inhibition and  
 recognition memory*. Advisor: Michael Hasselmo.

**Grinnell College**, Grinnell, IA, USA — BA, 1990. Experimental Psychology.

**Peking University**, Beijing, People's Republic of China — BS, 1984.  
 Computer Science / Software Engineering

### Additional Educational History

**Carnegie Mellon University, USA**. Research assistant / Sloan Foundation  
 Grantee — 1988 (summer) Computer Science Department, Pittsburgh,  
 Pennsylvania. (Connectionist modeling of natural language understanding.  
 Lab director: Dr. David Touretzky.)

**Stirling University, UK**. Assistant researcher / Sloan Foundation Grantee—  
 1989 (summer). Computer Science Department,. (Connectionist modeling of  
 speech recognition. co-funded by The British TeleCom. Collaborator: Dr.  
 Leslie Smith.)

**Laboratory of Neuropsychology, NIH/NIMH, USA**. Intern — 1989 (fall  
 semester) (Behavioral and anatomical study of monkey visual memory. Lab  
 director: Dr. Mortimer Mishkin.)

**Harvard University, USA**. First year project — 1990-1991 (Visual mental  
 imagery in human subjects. Department of Psychology. Lab director: Dr.  
 Stephen Kosslyn.)

**Molecular Physiology, Yale University** (via the Harvard Exchange Scholar  
 program). New Haven, Connecticut. Exchange Scholar — 1991-1992].  
 (Neural basis of simple learning in the sea slug *Aplysia* using multicellular  
 optical recording with voltage sensitive dyes. Lab director: Dr. Lawrence  
 Cohen.)

**Marine Biological Laboratory, Woods Hole, Massachusetts, USA**.  
 Computational Neuroscience Course — 1994 (summer)

**Salk Institute**, Computational Neurobiology Lab, Howard Hughes Medical  
 Institute, **La Jolla, California, USA**. Postdoc — 1995-1997. Lab director:  
 Terrence Sejnowski.

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### Employment History (principal positions)

**Software Institute, Chinese Academy of Science, Beijing, PRC.** Research staff — 1984-1986 (Requirement specification, system design and programming. Lab director: Long Shan Xu.)

**University of New Mexico, Albuquerque, New Mexico, USA.** Assistant Professor — 1997-2004, Associate Professor, 2004-2016. Department of Psychology. Director of Developmental Cognitive Neuroscience Lab and Director of EEG-based Source Imaging Lab.

**US National Science Foundation.** Cognitive Neuroscience Program. SBE/BCS. **Arlington, VA.** Aug. 2012- Aug 2014. On leave from University of New Mexico.

**US National Science Foundation.** China Program. Office of International Science & Engineering, Office of the Director. **Arlington, VA.** Dec. 2014-June 2016. On leave from University of New Mexico.

**The University of Hong Kong, Hong Kong, China.** Full Professor. 2016-2020. Inaugural Director. Laboratory of Neuroscience for Education, Faculty of Education.

**Neural Dialogue, Shenzhen Educational Technology, LLC. Shenzhen, PRC.** July 2020 — present. Founder & CEO.

### Employment History (concurrent and visiting appointments)

**Rockefeller University, New York, New York, USA.** Visiting Scientist — 2001-2002. The Laboratory of Neuroendocrinology. Lab director: Dr. Bruce McEwen.

**University College London, London, UK.** Visiting Professor — 2004-2005 Functional Imaging Lab, Institute of Neurology, Lab director: Dr. Ray Dolan.

**University of New Mexico Albuquerque, New Mexico, USA.** Department of Neuroscience. Assistant Professor — 1997-2004; Associate Professor — 2004-2016.

**University of New Mexico Albuquerque, New Mexico, USA.** Department of Computer Science. Assistant Professor — 1997-2004; Associate Professor — 2004-2016.

### Professional Recognition, Honors, etc

Phi Beta Kappa, 1989. USA.

Full Scholarship, 1986-1990, Grinnell College. USA.

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William James Merit Scholarship, 1990-1992, Harvard University. USA.

Ph.D. Thesis Award from the International Society for Women in Cognitive Neuroscience in association with the Society for Cognitive Neuroscience Conference, 1997.

### Professional Affiliations

Society for Psychophysiology Research

Society for Research in Child Development

Society of Biological Psychiatry

Society for Cognitive Neuroscience

International Society for Developmental Psychobiology

American Psychological Society

Society for Neuroscience

Organization for Human Brain Mapping

The American Association for the Advancement of Science

### Research Funding (US dollar unless otherwise specified)

NfE Lab Development and Refurbishment fund. **HK\$ 3.8M**. As PI.

Anthony Sweeting Memorial Fund with Matching Funds. **HK\$ 1.68M**. As PI.

38<sup>th</sup> Round Postdoc Fellow Scheme: *Stress and Learning*. **HK\$ 800K**. As PI.

Seed Fund for Basic Research: EEG-Based Source Imaging in Laboratory and Natural Learning Environment. **HK\$ 150K**. As PI.

GRF Leveraging Background Music for Learning: An Interdisciplinary Approach. **~HK\$ 487K**. PI: Hu. Co-I: Tang.

Hong Kong Postgraduate Fellowship 2018-2022. **HK\$ 1M**. As PI.

Seed Grant for International and Cross-border Collaborative Research Funds. **HK\$ 30K**. PI: Tang. Co-I: Weekes.

Tin Ka Ping Visiting Fellowship Scheme 2017/18. **~HK\$ 9K**. As PI.

Early Life Modulators and Predictors of PTSD-Like Symptoms. Akaysha Tang PI. COBRE. 2009 - 2010: **\$12,500**.

Augmenting the effect of neonatal stimulation via juvenile stimulation: enhancing adult social and cognitive functions. Akaysha Tang. PI. Sept. 2008-2009. Research Allocations Committee, UNM. **\$4,000**.

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Predicting decision making using human “Brain Prints” (continuation). Akaysha Tang PI. Sandia National Lab. Oct. 2007-Sept. 2008: ~**\$175,000**.

*Predicting decision making using human “Brain Prints”*. Akaysha Tang PI. Sandia National Lab. Oct. 2006-Sept. 2007: **\$200,000**.

Validation and Extraction of human “Brain Prints” from High Density EEG. Akaysha Tang PI. Sandia National Lab. Feb. 2006-Sept. 2006: **\$150,000**.

Alleviation of Pathophysiological Effects of Anoxia by Neonatal Novelty Exposure. Akaysha Tang PI. COBRE. 2004: **\$14,985**.

Asymmetric Frontal Activation and Reactivity to Novelty in Inhibited and Uninhibited Children. Akaysha Tang PI. UNM Large RAC. 2004: **\$7,325**.

Neonatal Novelty Exposure and Enhancement of Synaptic Plasticity. Akaysha Tang PI. UNM RAC. 2003: **\$3,500**.

Multi-Resolution Analysis of Independent Components of Electroencephalography. Terry Loring (Mathematics) and Akaysha Tang co-PIs. UNM RAC. 2003-2004: **\$4,000**.

*Augmented Cognition Phase II*. Akaysha Tang PI. DARPA. 2003-2004: **\$200,000**. (Administered partially through subcontract award from Honeywell and partially through subcontract award from Integrated Management Services Incorporated (IMSI)).

Augmented Cognition: Enhancing cognitive processing through cross modal facilitation using optimal delays. Akaysha Tang PI. DARPA. 2002-2003: **\$875,000**.

Real time control of external devices using neuromagnetic responses separated by the blind source separation method. Akaysha Tang and Barak Pearlmutter co-PIs. 2000-2001: **\$100,000** (Subcontract from Sarnoff (funded by DARPA)).

A combined MEG and fMRI study of inter hemispheric plasticity in normals and schizophrenics. Akaysha Tang. 2000-2001: **\$100,000**. National Foundation for Functional Brain Imaging (Year II competitive renewal).

A combined MEG and fMRI study of inter-hemispheric plasticity in normals and schizophrenics. Akaysha Tang PI. 1999-2000: **\$141,200**. National Foundation for Functional Brain Imaging.

Akaysha Tang PI. 1999: **\$5,000**. Gift from Dr. George Cowan, former president of the Santa Fe Institute.

Identification of Sources of Variability in Brain Activity using Covariant Maximum Likelihood Algorithms. Barak Pearlmutter and Akaysha Tang co-PIs. 1998: **\$100,000**. UNM Center for High Performance Computing.

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## Publications

Sun R, Cheng ASK, Chan C, Hsiao J, Privitera AJ, Gao J, Fong CH, Ding R, **Tang AC**. Tracking gaze position from EEG: Exploring the possibility of an EEG-based virtual eye-tracker. *Brain Behav.* 2023 Oct;13(10):

Privitera A.J. & **Tang AC (2022)**. Functional significant of individual differences in P3 network spatial configuration. *Journal of Psychophysiology* 36(4), 215-230.

Privitera A, Sun R, & **Tang AC (2022)**. A resting-state network for novelty: similar involvement of a global network under rest and task conditions. *Psychiatry Res. Neuroimaging.* 323: 111488.

**Tang AC**, Privitera A.J. Hua Y, & Fung R (2021). Task-free recovery and spatial characterization of a globally synchronized network from resting-state EEG. *In: Intelligent Computing and Block Chain. FICC 2020. Communications in Computer and Information Science. Vol 1385 Springer, Singapore.* [https://doi.org/10.1007/978-981-16-1160-5\\_3](https://doi.org/10.1007/978-981-16-1160-5_3).

R. Sun, C. Chan, J. Hsiao, & **A.C. Tang (2021)** Validation of SOBI-DANS method for automatic identification of horizontal and vertical eye movement components from EEG. *Psychophysiology.* 582:13731

Li Y, Yang Y, **Tang AC**, Liu N, Wang X, Du Y, Hu W (2020) English spoken word segmentation activates the prefrontal cortex and temporo-parietal junction in Chinese ESL learners: A functional near-infrared spectroscopy (fNIRS) study. *Brain Res.* 2020. doi: 10.1016/j.brainres.2020.146693. Epub 2020 Jan 30

Dinces SM, Rowell LN, Benson J, Hile SN, **Tang AC**, Annett RD (2019) Normalized Cortisol Reactivity Predicts Future Neuropsychological Functioning in Children With Mild/Moderate Asthma. *Front Psychol.* 2019 Nov 19;10:2570. doi: 10.3389/fpsyg.2019.02570. eCollection 2019

R. R. Romeo, **A. C. Tang**, & R. Sullivan (2017). Early life experiences: enduring behavioral, neurological and endocrinological consequences. Invited co-authored chapter with Russel Romeo & Regina Sullivan in a new edition by D. Pfaff, A. Arnold, A. Etgen, S. Fahrbach, R. Rubin (3<sup>rd</sup> Eds.) *Hormones, Brain, and Behavior*.

S. M. Dinces, R. R. Romeo, B. S. McEwen, & **A. C. Tang (2014)**. Enhancing offspring hypothalamic-pituitary-adrenal (HPA) regulation via systematic novelty exposure: the influence of maternal HPA function. *Front Behav Neurosci.* 2014 Jun 5; 8:204. doi: 10.3389/fnbeh.2014.00204. eCollection 2014.

Y. Zhang, **A. C. Tang**, & X. Zhou (2014). Synchronized network activity as the origin of a P300 component in a facial attractiveness judgment task. *Psychophysiology*, 51(3), 285-9.

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- A. C. Tang**, B. C. Reeb-Sutherland, R. R. Romeo, & B. S. McEwen (2014). On the causes of early life experience effects: evaluating the role of mom. *Front Neuroendocrinol.* 2014 Apr; 35(2):245-51. doi: 10.1016/j.yfrne.2013.11.002. Epub 2013 Nov 15.
- A. C. Tang**, B. C. Reeb-Sutherland, R. R. Romeo, & B. S. McEwen (2012a). Reducing behavioral inhibition to novelty via systematic neonatal novelty exposure: the influence of maternal hypothalamic-pituitary-adrenal (HPA) regulation. *Biol. Psychiatry*, 72(2), 150-6.
- A. C. Tang**, Z. Yang, B. C. Reeb-Sutherland, R. R. Romeo, & B. S. McEwen (2012b). Maternal modulation of novelty effect on physical development. *Proc. Nat. Acad. Sci.*, vol. 109 no. 6 2120-2125.
- B. C. Reeb-Sutherland & **A. C. Tang** (2012c). Functional Specificity in Modulation of Novelty Exposure Effects by Reliability of Maternal Care. *Beh. Brain Res*, 226(1), 345-50.
- M. Saggar, B. G. King, K. A. Maclean, S. R. Aichele, T. L. Jabocs, D. A. Bridwell, P. R. Shaver, E. L. Rosenberg, B. K. Sahdra, E. Ferrer, **A. C. Tang**, G. R. Mangun, B. A. Wallace, R. Miikkulainen, & C. D. Saron (2012d). Intensive training induces longitudinal changes in meditation state-related EEG oscillatory activity. *Front Hum Neurosci*, 6:256. doi:10.3389/fnhum.2012.00256. Epub 2012 Sep 10.
- A. C. Tang**, B. C. Reeb-Sutherland, Z. Yang, R. D. Romeo, & B. S. McEwen (2011a). Neonatal novelty-induced persistent enhancement in offspring spatial memory and the modulatory role of maternal self-stress regulation. *Journal of Neuroscience*, 31(14), 5348-5352.
- A. C. Tang**, H. Jiang, Z. Yang, Y. Zhang, R. R. Romeo, & B. S. McEwen (2011b). Converging Influence of Neonatal Novelty Experience and Maternal Self-Stress Regulation on the Plasticity of Offspring Acoustic Startle Response Latency. *Beh. Brain Res.* 221(1), 253-260.
- A. C. Tang**, B. C. Reeb-Sutherland, & Z. Yang (2011c). Functional Brain Asymmetry in Adult Novelty Response: On Fluidity of Early Experience Effects. *Beh. Brain Res.* 221(1), 91-97.
- A. C. Tang**, B. C. Reeb-Sutherland, Z. Yang, R. R. Romeo, & B. S. McEwen (2011d). Postnatal Novelty-Induced Persistent Enhancement in Offspring Spatial Memory and the Modulatory Role of Maternal Self-Stress Regulation. *J. Neurosci.* 31(14), 5348–5352.
- A. C. Tang**, M. T. Sutherland, & Z. Yang (2011e). Capturing “Trial-to-Trial” Variations in Human Brain Activity: from Laboratory to Real World. *The dynamic brain: An exploration of neuronal variability and its functional significance*. Oxford University Press.
- B. C. Reeb-Sutherland & **A. C. Tang** (2011f). Dissociation between Neonatal Novelty-Induced Simultaneous Enhancement in Cognitive, Social, and Emotional Functions from Maternal Care. *Beh. Brain Res*, 224(2), 318-325.

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Z. Yang & **A. C. Tang (2011g)**. Novelty-induced enhancement in spatial memory: Is infancy a critical period? *Beh. Brain Res.* 219(1), 47-54.

**A. C. Tang (2010)**. Applications of Second Order Blind Identification to High-Density EEG-Based Brain Imaging: A Review. *ADVANCES IN NEURAL NETWORKS - ISNN 2010. Lecture Notes in Computer Science*, 2010, Volume 6064/2010, 368-377, DOI: 10.1007/978-3-642-13318-3\_46

R. R. Romeo, **A. C. Tang**, & R. M. Sullivan (2009). Early life experiences: enduring behavioral, neurological and endocrinological consequences. In D. Pfaff, A. Arnold, A. Etgen, S. Fahrbach, R. Rubin (Eds.) *Hormones, Brain, and Behavior*, 2nd ed. Academic Press.

K. G. Akers, Z. Yang, D. P. Delvecchio, B. C. Reeb-Sutherland, R. R. Romeo, B. S. McEwen, & **A. C. Tang (2008a)**. Social competitiveness and plasticity of neuroendocrine function in old age: influence of neonatal novelty exposure and maternal care reliability. *PLoS ONE.*, 3(7).

**A. C. Tang**, B. Zou, B. C. Reeb-Sutherland, & J. A. Conner (2008b). An epigenetic induction of a right-shift in hippocampal asymmetry: selectivity for short- and long-term potentiation but not post-tetanic potentiation. *Hippocampus*, 18, 5-10.

P. Sun, Z. Yang, A. M. Korzekwa, M. T. Sutherland, & **A. C. Tang (2007a)**. Determining Gender from Local Network Synchronization in the Frontal Cortex. *Proceedings of the International Conference for Cognitive Neurodynamics. (ICCN 2007)*, Shanghai, P. R. China; November 17-21, 2007.

**A. C. Tang**, M. T. Sutherland, P. Sun, Y. Zhen, M. Nakazawa, A. M. Korzekwa, Z. Yan, & M. Ding (2007b). Top-down versus bottom-up processing in the human brain: Distinct directional influences revealed by integrating SOBI and Granger causality. *Proceedings of the 7th International Conference on Independent Component Analysis and Signal Separation (ICA 2007)*, London, UK; <http://www.elec.qmul.ac.uk/ica2007/papers.html>.

M. T. Sutherland & **A. C. Tang (2006a)**. Reliable detection of bilateral activation in human primary somatosensory cortex by unilateral median nerve stimulation. *NeuroImage*, 33(4), 1042-1054.

M. T. Sutherland & **A. C. Tang (2006b)**. Blind Source Separation can Recover Systematically Distributed Neuronal Sources from "Resting" EEG. In: *EURASIP Proceedings of the Second International Symposium on Communications, Control, and Signal Processing (ISCCP 2006)*. March 13-15, Marrakech, Morocco; <http://www.eurasip.org/content/Eusipco/isccsp06/defevent/papers/cr1307.pdf>.

**A. C. Tang**, K. G. Akers, B. C. Reeb-Sutherland, R. R. Romeo, & B. S. McEwen (2006c). Programming social, cognitive, and neuroendocrine development by early exposure to novelty. *Proc. Nat. Acad. Sci.*, 103(42), 15716-21.

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**A. C. Tang**, M. T. Sutherland, & Y. Wang (2006d). Contrasting Single-Trial ERPs between Experimental Manipulations: Improving Differentiability by Blind Source Separation. *NeuroImage*, 29(1), 335-346.

**A. C. Tang**, M. T. Sutherland, C. J. McKinney, J. Liu, Y. Wang, L. C. Parra, A. D. Gerson, & P. Sajda (2006e). Classifying single-trial ERPs from visual and frontal cortex during free viewing. In: *IEEE Proceedings of the 2006 International Joint Conference on Neural Networks (IJCNN 2006)*, July 16-21, 2006; Vancouver, BC, Canada; pp. 1376-1383.

M. Nakazawa & **A. C. Tang** (2006f). Adult aggression during an initial social encounter: Effects of neonatal anoxia and relation to juvenile open-field activity. *Neuroscience Letters*, 408, 119-123.

K. G. Akers, M. Nakazawa, R. R. Romeo, J. A. Connor, B. S. McEwen, & **A. C. Tang** (2006g). Early Life Modulators and Predictors of Adult Synaptic Plasticity. *European Journal of Neuroscience*, 24(2), 547-554.

**A. C. Tang**, M. T. Sutherland, & C. J. McKinney (2005a). Validation of SOBI components from high-density EEG. *NeuroImage*, 25(2), 539-553.

**A. C. Tang**, J. Liu, & M. T. Sutherland (2005b). Recovery of Correlated Neuronal Sources from EEG: The Good and Bad Ways of using SOBI. *NeuroImage*, 28(2), 507-519.

**A. C. Tang**, M. Nakazawa, R. R. Romeo, B. C. Reeb-Sutherland, H. Sisti, & B. S. McEwen (2005c). Effects of Long-Term Estrogen Replacement on Social Investigation and Social Memory in Ovariectomized C57BL/6 Mice. *Hormones & Behavior*, 47, 350-357.

**A. C. Tang** & M. Nakazawa (2005d). Neonatal Novelty Exposure Ameliorates Anoxia-Induced Hyperactivity in the Open Field. *Behavioural Brain Research*, 163, 1-9.

B. C. Reeb-Sutherland & **A. C. Tang** (2005e). Sex Difference in Temporal Patterns of Social Interaction and Its Dependence upon Neonatal Novelty Exposure. *Behavioural Brain Research*, 158, 359-365.

K. G. Akers, B. C. Reeb-Sutherland, & **A. C. Tang** (2004a). Developmentally Stable Sex-Dependent Modulation of Turning Asymmetry by Neonatal Novelty Exposure. *Behavioural Brain Research*, 155, 257-263.

**A. C. Tang** & B. C. Reeb-Sutherland (2004b). Neonatal Novelty Exposure, Dynamics of Brain Asymmetry, and Social Recognition Memory. *Developmental Psychobiology*, 44, 84-93.

Y. Wang, M. T. Sutherland, L. L. Sanfratello, & **A. C. Tang**. (2004c). Single-Trial Classification of ERPs Using Second-Order Blind Identification (SOBI). In: *IEEE Proceedings of the Third International Conference on Machine Learning and Cybernetics*; August 26-29, 2004; Shanghai, China; vol. 7, pp.4246-4251. as printed.



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M. T. Sutherland, J. Liu, & **A. C. Tang**. (2004d). Temporal Delays in Blind Identification of Primary Somatosensory Cortex. In: *IEEE Proceedings of the Third International Conference on Machine Learning and Cybernetics*; August 26-29, 2004; Shanghai, China; vol. 7, pp.4222-4227 as printed.

T. A. Loring, D. E. Worth, & **A. C. Tang**. (2004e). Single-Trial Multiresolution Metrics for Detecting Single-Trial Evoked Response Potentials (ERPs). In: *IEEE Proceedings of the Third International Conference on Machine Learning and Cybernetics*; August 26-29, 2004; Shanghai, China; vol. 7, pp.4240-4245.

**A. C. Tang**, B. C. Reeb-Sutherland, R. R. Romeo, & B. S. McEwen (2003a). Modification of Social Memory, HPA Axis, and Brain Asymmetry by Neonatal Novelty Exposure. *J. Neurosci.*, 23(23), 8254-8260.

**A. C. Tang**, M. Nakazawa, & B. C. Reeb-Sutherland (2003b). Neonatal Novelty Exposure Affects Sex Difference in Open Field Disinhibition. *NeuroReport*, 14, 1553-1556.

**A. C. Tang** (2003c). A Hippocampal Theory of Cerebral Lateralization. In *The Asymmetrical Brain*, edited by Kenneth Hugdahl & Richard J. Davidson. 2nd Edition, 37-68 MIT Press.

**A. C. Tang** & B. A. Pearlmutter (2003d). Independent Components of Magnetoencephalography: Localization & Single-Trial Response Onset Detection. In *Magnetic Source Imaging of the Human Brain*. Invited Chapter for a festschrift in honor of Samuel Williamson, edited by Lloyd Kaufman & Zhong Lin Lu. Lawrence Erlbaum and Associated (LEA).

L. Parraa , C. Alvinoa , **A. C. Tang**, B. A. Pearlmutter, N. Yeung, A. Osman, P. Sajda (2003e). Single-trial detection in EEG and MEG: Keeping it linear. *Neurocomputing* 52-54,177-183.

**A. C. Tang** & B. Zou (2002a). Neonatal Exposure to Novelty Enhanced Long-Term Potentiation in CA1 of the Rat Hippocampus. *Hippocampus*, 12(3), 398-404.

**A. C. Tang** & T. Verstynen (2002b). Early Life Environment Modulates "Handedness" in Rats. *Behavioural Brain Research*, 131, 1-7.

**A. C. Tang**, B. A. Pearlmutter, N. A. Malaszenko, D. B. Phung, & B. C. Reeb-Sutherland (2002c). Independent Components of Magnetoencephalography: Localization. *Neural Computation*, 14(8), 1827-1858.

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L. Parra, C. Alvino, **A. C. Tang**, B. A. Pearlmutter, N. Yeung, A. Osman, & P. Sajda (2002e). Linear Spatial Integration for Single Trial Detection in Encephalography. *NeuroImage*, 17(1), 223-230.

**A. C. Tang** & B. A. Pearlmutter (2002f). Independent Components of Magnetoencephalography: Localization. In Frederich T. Sommer & Andrzej

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Wichert (eds) *Exploratory Analysis and Data Modelling in Functional Neuroimaging*. MIT Press, chapter 7, pages 129-162. This is an invited republication of Tang et al., **2002**, *Neural Computation*, 14(8), 1827-1858. With copyright permissions.

L. Parra, C. Alvino, **A. C. Tang**, B. A. Pearlmutter, N. Yeung, A. Osman, & P. Sajda (**2002g**). Linear spatial weighting for single trial detection in encephalography. *Neurocomputing*.

**A. C. Tang (2001a)**. Neonatal Exposure to Novel Environment Enhanced Hippocampal-Dependent Memory Function during Infancy and Adulthood. *Learning & Memory*, Sep-Oct; 8(5), 257-64.

B. Zou, G. Golarai, J. A. Connor, & **A. C. Tang (2001b)**. Neonatal Exposure to a Novel Environment Enhances the Effects of Corticosterone on Neuronal Excitability and Plasticity in adult Hippocampus. *Developmental Brain Research*, Sep 23; 130(1), 1-7.

T. Verstynen, R. Tierney, T. Urbanski, & **A. C. Tang (2001c)**. Neonatal Novelty Exposure Modulates Hippocampus Volumetric Asymmetry in the Rat. *NeuroReport*, Oct 8; 12(14), 3019-22.

**A. C. Tang**, B. A. Pearlmutter, T. Hely, M. Zibulevsky, & M. P. Weisend (**2000a**). An MEG Study of Response Latency and Variability in the Human Visual System during a Visual-Motor Integration Task. *Advances in Neural Information Processing Systems 12*, S.A. Solla, T.K. Leen, & K.R. Muller (Eds.) 181-191 MIT Press.

**A. C. Tang**, D. Phung, B. A. Pearlmutter, & R. Christner (**2000b**). Localization of Independent Components from Magnetoencephalography. In: *Proceedings of the International Workshop on Independent Component Analysis and Blind Signal Separation, Helsinki, Finland*, pp. 387-392.

**A. C. Tang**, B. A. Pearlmutter, T. A. Hely, M. Zibulevsky, M. P. Weisend (**2000c**). An MEG study of response latency and variability in the human visual system during a visual-motor integration task. *Advances in neural information processing systems (NIPS)*, 185-191.

**A. C. Tang**, B. A. Pearlmutter, M. Zibulevsky, S. A. Carter (**2000d**). Blind source separation of multichannel neuromagnetic responses. *Neurocomputing 32*, 1115-1120.

**A. C. Tang**, J. Wolfe, & A. M. Bartels (**1999**). Cholinergic modulation of spike timing and spike rate. *Neurocomputing*, 26, 293-298.

**A. C. Tang**, A. M. Bartels, T. J. Sejnowski (**1998**). Cholinergic modulation of spike timing and spike frequency adaptation in neocortical neurons. *Computational Neuroscience*, 291-296.

**A. C. Tang**, A. M. Bartels, & T. J. Sejnowski (**1997a**). Effects of cholinergic modulation on neocortical neurons in responses to fluctuating inputs. *Cerebral Cortex*, 7, 502-9.

**A. C. Tang**, A. M. Bartels, & T. J. Sejnowski (1997b). Cholinergic modulation preserves spike timing under physiologically realistic fluctuating input. In *Advances in Neural Information Processing Systems (NIPS) 9.*, Ed: Michael C. Mozer, Michael I. Jordan, & Thomas Petsche. Morgan Kaufman. 111-117.

**A. C. Tang** & M. E. Hasselmo (1996). Effect of long term baclofen treatment on recognition memory and novelty detection. *Behavioral Brain Research*, 74, 145-152.

**A. C. Tang** & M. E. Hasselmo (1995). To recognize the new, must one remember the old? GABAergic modulation and its computational and behavioral consequences. In: *Proceedings of the Annual Computational Neuroscience Conference*, Luwer Academic Publishers, Boston.

**A. C. Tang** & M. E. Hasselmo (1994). Selective suppression of intrinsic but not afferent fiber synaptic transmission by baclofen in the piriform (olfactory) cortex. *Brain Research*, 659, 75-81.

J. Y. Wu, Y. Tsau, H. P. Hopp, L. B. Cohen, & **A. C. Tang** (1994). Consistency in nervous systems: trial-to-trial and animal-to-animal variations in the responses to repeated applications of a sensory stimulus in *Aplysia*. *Journal of Neuroscience*, Mar; 14(3 Pt 1), 1366-84.

**A. C. Tang**, C. X. Falk, L. B. Cohen, B. A. Pearlmutter, H. P. Hopp, & J. Y. Wu (1993a). The majority of the neurons in the *Aplysia* ganglion show unreliable response to siphon stimulation. *Proceedings of International Joint Conference on Neural Networks*.

C. X. Falk, J. Y. Wu, L. B. Cohen, & **A. C. Tang** (1993b). Non-uniform Expression of Habituation in the activity of distinct classes of neurons in the *Aplysia* abdominal ganglion. *Journal of Neuroscience*, 13(9), 4072-4081.

**A. C. Tang** & L. Smith (1992). Speaker independent vowel recognition. In *Neural Networks for Vision, Speech and Natural Language*. Ed: R. Linggard, D.J. Myers, & C. Nightingale. Chapman and Hall. 456-66.

## Leadership and Science Administration at the US National Science Foundation

**Administration of the merit review process.** I conducted a total of four rounds of CogNeuro reviews and processed about 300 proposals. Activities included: (1) reading the proposals; (2) securing reviews; (3) identifying, inviting, and appointing the review panel; (4) working with staff on meeting logistics; (5) preparing training material and orienting the panelists; (6) conducting the panel review and approving panel summaries for each proposal; (7) writing review analysis for each proposal to document the considerations behind each funding recommendation; (8) working with the awardee and sponsored research office to prepare the documents for award,

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including budget review, writing of an abstract for the general public, reviewing IRB approvals, and standardizing a data management plan.

**Funding recommendations.** I considered multiple constraints in making funding recommendations: support innovative and transformative research, balance the portfolio across different subfields within cognitive neuroscience, and encourage broad participation from investigators of different gender, race, and geographic regions. I introduced a strategy to fund projects in clusters so that synergistic relations among these projects would offer additional value. To improve the efficiency of my operation and support the management for future evaluation and planning, I created guidelines for (1) data management, (2) writing award abstracts, (3) award preparation, and (4) spread sheets for tracking awards statistics.

**Post-award management and outreach.** I reviewed annual and final project reports for all active CogNeuro awards; (2) identified news-worthy research findings from the funded work and wrote research highlights for publications by NSF's Office of Legislative and Public Affairs (OLPA); (3) supported OLPA in the making of public-facing radio and video programs; (4) identified, communicated to division leadership, and handled cases of mismanagement of NSF funding. I developed a supplemental guideline on how to write an effective annual and final report. I gave talks on CogNeuro Funding process at major international meetings and answered PI email and phone inquiries.

**Working with additional NSF funding mechanisms.** (1) Collaborative Research in Computational Neuroscience (CRCNS) Program (inter-agency program): ran panel meetings and participated in funders' meetings. (2) Major Research Instruments (MRI) Program: served as a panelist for reviewing proposals. (3) BRAIN EAGERS: co-funded projects with the Science of Learning Center (SLC) Program and Developmental and Learning Sciences (DLS) Program. (4) Global Venture Fund (GVF): reviewed internal requests for co-funding and made funding recommendations for China related projects (5). Partnerships for International Research and Education (PIRE) Program: participated in panel review meetings and wrote review analysis; made awards for China-related projects. (6) International Research Experiences for Students (IRES): made awards for China-related projects. (7) East Asia and Pacific Summer Institutes for U.S. Graduate Students (EAPSI) Program: conducted panel review meetings; write award abstracts for China-related projects.

**Intra- and inter-agency and international activity:** (1) Served on NSF-wide BRAIN Initiative-related working group. (2) Attended meetings held by the National Academy of Sciences (NAS) and the American Association for the Advancement of Sciences (AAAS). (3) Attended White House Salon with Todd Park, President Obama's Chief Technology Officer. (4) Attended BRAIN Initiative related briefing on the Capital Hill. (5) Participated in the 2015 U.S.-China Strategic & Economic Dialogue and Consultation on People-to-People

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Exchange, where I gave a short update on NSF's collaborative activity with China. (6) Coordinated a major visit to the NSF Director from Minister Wan Gang, Ministry of Science and Technology of China. (7) Prepared briefing paper on China for NSF Director at the 2015 Global Research Council Meeting. (8) Supported NSF Beijing Office Head in various activities. (9) Maintained the China Desk. (10) Secured co-funding from eight programs across six NSF directorates/offices for a study of China's neuroscience landscape.

**Long-range planning.** I set the following funding priorities areas: (1) raising EEG's status as a major tool for studying cognitive functions in the real world; (2) stimulating tool development for real time in vivo monitoring of neurochemicals; (3) encouraging a cognitive neuroscience of the individual. The setting of these priority areas anticipates (1) the current rapid growth in global investment in EEG-based neurotechnology, (2) the upcoming investments in the development of new tools for imaging not only of neuroelectrical signals but also neurochemicals throughout the brain, and (3) the increasing momentum in individualized brain care utilizing these technical advancements.

### Selected Invited National and International Talks

*Neuroscience and Education Forum, Keynote Speaker. Association of Metropolitan Institutes for Education Research, Jinan, Shandong, China. Oct 31, 2019.*

Meisha Wanke Academy Educational Forum, **Shenzhen, Guangdong, China.** April 13, 2019. Invited speaker. Science of Learning in the natural environment.

*Neuroscience and Education Forum, Keynote Speaker. Shenzhen Institute for Education Research, Shenzhen, Guangdong, China. 2019.*

*The Chinese National Computer Congress (CNCC) annual meeting. Invited speaker. Hangzhou, Zhejiang, China. Oct 25-27, 2018. Searching for core learning capacity: from synaptic plasticity to the dynamic regulation of the neuromodulators.*

*CCF-High Performance Computing (HPC) meeting, Qingdao, Shandong, China, on Oct 18-20, 2018. Judge and creator of one of the two final optimization problems used by Intel Sponsored Parallel Application Competition (PAC) 2018.*

*CCF Future Computer Science Education Summit 2018, Keynote Speaker. the Chinese Computer Science Federation. Nanjing, China. Jul 20 – 21, 2018. Imaging the Learning Brain: From the Laboratory to Natural Environment.*

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*Peking University, summer school. **Beijing, China.** Jul 16 – 18, 2018. An introduction to Science of Learning, a three-day lecture series.*

*Neuroscience and Education Forum, Keynote Speaker. Association of Metropolitan Institutes for Education Research, **Qingdao, China.** Jul 6 – 8, 2018.*

*Beijing Normal University, **Beijing, China.** May 3, 2018. EEG-based Brain Imaging for Investigating Learning in Natural Learning Context.*

*IT Women Elites Conference, the Chinese Computer Science Federation, **Suzhou, China.** Apr 20 – 22, 2018. Keynote speaker.*

*East China Normal University, **Shanghai, China.** Feb 28, 2018. EEG Based Brain Imaging for Investigating Learning in the Real World.*

*Global Convergence on the Science of Learning meeting, the National Science Foundation, **US at Washington DC.** Feb 8 - 10, 2018. How can we frame research questions in the Science of Learning that are particularly amenable for convergent science?*

*Division of Chinese Language and Literature. Faculty of Education, University of Hong Kong, **Hong Kong, China.** December 7, 2017. Neuroscience for Education: What, How and Where.*

*International Science of Learning Symposium. **Rio de Janeiro, Brazil.** Oct 22 – 25, 2017. Invited speaker. EEG Based Brain Imaging for Investigating Learning in the Real World.*

*Max Planck Institute for Human Cognitive and Brain Sciences, **Leipzig, Germany.** 17 October, 2017. **Host: Prof. Angela D. Friederici.** Driving and being driven—a unique role of right hippocampal dominance in learning-enhanced leftdominance in Broca's area.*

*The 186<sup>th</sup> Shuang Qing Forum, Bureau of Science Policy, the Department of Information Science and the Department of Management Science, National Science Foundation of China. September 18-19, 2017. **Beijing.** Seminar on Link to the Future: Education, Technology, and Innovation*

*2017 International Science of Learning Conference in **Brisbane, Australia.** September 18 – 20, 2017. Seminar on *Recent advances in EEG source imaging and new opportunities for investigating natural reading.* (due to conflict, did not attend).*

*The Institute of Creativity, the Hong Kong Baptist University. **Hong Kong, China.** July 31, 2017. Workshop on Brain Signal Variability: EEG-Based Brain Source Imaging and Neuro-technology for Learning*

*Bureau of Science Policy, National Science Foundation of China. **Beijing** July 14, 2017. **Host: Dr. Yonghe Zheng,** Director of the Bureau. Seminar on Science of Learning: Science of Learning and Future Education.*

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*Graduate School of Education, Peking University, Beijing.* July 13, 2017. **Host: Dr. Junjie Shang**, Vice Dean, Graduate School of Education. Seminar on Educational Neuroscience: Neuroscience for Education: A New Bridge.

*Faculty of Education, University of Hong Kong, Hong Kong, China.* July 20, 2015. **Host: Nancy Law**, Director, Center for Educational Neuroscience. Seminar on Science of Learning: Strategic Research Theme: Making a child a better learner.

*Faculty of Education, University of Hong Kong, Hong Kong, China.* July 16, 2015. **Hosted by Dr. Brendan Weekes.** Seminar on Science of Learning: Strategic Research Theme: Measuring fundamental learning capacity of the developing brain using high-density EEG.

*National Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University. Beijing, China.* July 7, 2015. **Hosted by Dr. Hua Shu.** Reliability, Interpretability, and Robustness of High-Density EEG-Based Source Imaging—Enabling Tools for an individualized science of learning.

*Neuroimaging Institute, Texas Tech University. Lubbock, US.* Oct. 30, 2014. **Host: Sunanda Mitra.** Reliability and Interpretability of High-Density EEG-based Source Imaging--Enabling Tools for a Cognitive Neuroscience of individuals.

*Center for Psychiatric Neuroscience, Department of Psychiatry, Lausanne University Hospital. Lausanne, Switzerland* Feb, 6, 2014. **Host: Kim Do.** Reliability and Interpretability of High-Density EEG-based Source Imaging--Enabling Tools for Innovative Clinical Diagnosis and Treatment.

*Institut des sciences cognitives (ISC) – CNRS, Lyon, France.* Feb 7, 2014. **Host: Felipe Boulinguez.** Reliability and Interpretability of High-Density EEG-based Source Imaging--Enabling Tools for a Cognitive Neuroscience of the Individual.

*The Third Mental Health Conference “Early Identification and Intervention of Mental Disorders”. Jinhua, China.* Nov. 16-17, 2013. **Host: Fei Luo.** Reliability and Interpretability of High-Density EEG-based Source Imaging--Enabling Tools for Innovative Clinical Diagnosis and Treatment.

*Center for Cognitive Neuroscience, the State University of New Jersey Rutgers. US.* **Host: Mary Rigdon.** Reliability and Interpretability of High-Density EEG-based Source Imaging--Enabling Tools for a Cognitive Neuroscience of the Individual.

*Center for Social and Cognitive Neuroscience, University of Chicago. Chicago, IL. US.* **Host: John Cacioppo.** May 30, 2013. Reliability and interpretability of high density EEG-based Source Imaging--enabling tools for a cognitive neuroscience of the individual.

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*Cleveland Clinic, Epilepsy Grand Rounds. Cleveland, OH. US. Host: Norman So.* March 22, 2013. How might advances in SOBI transform clinical diagnosis and health care practice?

*Institute of Psychology, Academy of Science, Sinica, Beijing, China. Host: Fei Luo.* Oct 12, 2011. Novelty, Mother, and Development across Life Span.

*Child Development Laboratory, University of Maryland, College Park, MD, US. Host: Nathan Fox.* Dec 13, 2010. Top-Down versus Bottom-up Processing in the Human Brain: Distinct Directional Influences Revealed by Integrating SOBI and Granger Causality.

*Neuroimaging Research Branch, National Institute on Drug Abuse-Intramural Research Program, NIH/DHHS, Baltimore, MD, USA. Host: Elliot Stein.* Dec. 20, 2010. Applications of Second Order Blind Identification to High-Density EEG-Based Brain Imaging.

*Special Session on Signal Processing for Brain Imaging, International Symposiums on Neural Networks (ISNN), Shanghai, China. Host: Jianting Cao.* June 6-9, 2010. Applications of Second Order Blind Identification to High-Density EEG-Based Brain Imaging: A Review

*Department of Psychology, Beijing University, Beijing, China. Host: XiaoLin Zhou.* June 6, 2010. Applications of Second Order Blind Identification to High-Density EEG-Based Brain Imaging

*Institute of Psychology, Chinese Academy of Sciences, Beijing, China. Host: Fei Luo.* June 3, 2010. Applications of Second Order Blind Identification to High-Density EEG-Based Brain Imaging

*Enabling Stress Resistance Workshop, DARPA, San Deigo, CA. Host: Amy Kruse.* July 3, 2009. Long-lasting Modification of Individual Stress Resistance: Three Longitudinal Studies.

*Dynamic Neuroscience Symposium, Society for Neuroscience Annual Meeting, Washington, DC. Hosts: Dennis Glanzman & Mingzhou Ding.* Nov, 2008. Top-Down versus Bottom-up Processing in the Human Brain: Distinct Directional Influences Revealed by Integrating SOBI and Granger Causality.

*International Society for Developmental Psychobiology Annual Meeting, Washington, DC.* Nov. 2008. Beyond maternal licking-grooming: modulation of early stimulation effects by maternal physiology.

*Society for Neuroscience Annual Conference. San Diego, CA.* Nov. 7, 2007. Top-Down versus Bottom-up Processing in the Human Brain: Distinct Directional Influences Revealed by Integrating SOBI and Granger Causality.



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*Society for Neuroscience Annual Conference. San Diego, CA. Nov. 7, 2007. Measuring feed- forward and feed-back influence in the brains of 2-day old human infants by integrating SOBI and Granger causality*

*International Conference on Independent Component Analysis (ICA 2007). London, UK. Sept 9-13, 2007. Peer-review selected. Top-Down versus Bottom-up Processing in the Human Brain: Distinct Directional Influences Revealed by Integrating SOBI and Granger Causality.*

*International Society for Developmental Psychobiology. Atlanta, GA. October 13, 2006. What makes an adaptive rat—“better” mothers or early exposure to novelty?*

*New York State Psychiatric Institute / Columbia University. New York, NY. Host: Harry Shair. August, 2006. Programming social, cognitive, and neuroendocrine development by early exposure to novelty.*

*Department of Psychology, Trieste University, Trieste, Italy, Host: Gorgio Vallortegara. June 2005. How to make a smart rat.*

*Institute of Cognitive Neuroscience, University College London, London, UK. Host: Ray Dolan. May 2005. How to make a smart rat.*

*Center for Brain and Cognitive Development (CBDB), University College London, London, UK. Host: Mark Johnson. April, 2005. Extraction of single-trial ERP during free viewing.*

*Schwartz Center, University of California, San Diego. San Diego, CA. Host: Scott Makeig. June, 2004. Extraction of single-trial ERP during free viewing.*

*Hot topic talk at the Annual Meeting of American Psychological Society, Chicago, IL. May 28, 2004. Modification of Social Memory and Brain Asymmetry by Neonatal Novelty Exposure.*

*Department of Psychology, Boston University, Boston, MA. Host: Michael Hasselmo. March 19, 2004. Modification of Social memory, hypothalamic-Pituitary-Adrenal Axis, and Brain Asymmetry by Neonatal Novelty Exposure.*

*Brigham and Women's Hospital Neuroendocrinology Group, Harvard Medical School. Boston, MA. Host: Janis Anderson. March 15, 2004. Application of Blind Source Separation to MEG and EEG.*

*Department of Psychology, University of Southern California, Los Angeles, CA. Host: Zhonglin Lu. Oct. 2, 2003. Applications to a Blind Source Separation Algorithm to human MEG and EEG.*

*Department of Cognitive Science, University of California-Irvine, Irvine, CA. Host: George Sperling. Oct. 1, 2003. Applications to a Blind Source Separation Algorithm to human MEG and EEG.*

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*The Advanced Concept Group at Sandia National Laboratory, Albuquerque, NM. Host: Gerold Yonas.* April 17, 2003. Cognitive Enhancement: from animal models to humans.

*Department of Biomedical Engineering, Oregon Graduate Institute, Oregon Health and Sciences University, Portland, OR. Host: Misha Pavel.* April 11, 2003. The making of a smart rat---from neonatal novelty exposure to enhanced synaptic plasticity and memory at adulthood.

*Electrical Geodesics, Inc. Eugene, OR, Host: Don Tucker.* April 10, 2003. Localization and Single-Trial Response Timing Analysis of Human Magnetoencephalography and Electroencephalography Data using Second Order Blind Identification (SOBI).

*Sackler Institute for Developmental Psychobiology, New York, NY. Host: B.J Casey.* Jan 22, 2002. Enhancing cognitive development through early life environmental manipulation.

*The Albert Einstein College of Medicine, New York, NY. Host: Patrick Stanton.* May 14, 2001. Neonatal novelty exposure enhances cognitive performance and hippocampal synaptic plasticity.

*Laboratory of Neuroendocrinology, Rockefeller University, New York, NY. Host: Bruce McEwen.* May 11, 2001. Neonatal novelty exposure enhances cognitive performance and hippocampal synaptic plasticity.

*Symposium at Society for Psychophysiological Research, 40th Annual Meeting, San Diego, CA.* Oct. 2000. Measuring populational response timing in humans using magnetoencephalography and blind source separation.

*RUMPBA Workshop, Rutgers University. Newark, NJ. Host: Steve Hanson.* June 2000. Single-trial response onset time measurement from MEG data using blind source separation.

*Keck Center, University of California-San Francisco, San Francisco, CA. Host: Virginia de Sa.* April 2000. Neonatal novelty enhances hippocampal dependent learning and hippocampal synaptic plasticity.

*Welcome Department of Cognitive Neurology, University College of London, London, UK. Host: S. Zeki.* Summer 1998. Functional Significance of Cerebral Lateralization.

*Santa Fe Institute. Santa Fe, NM.* April 1998. **Host: Ellen Goldberg.** Neuromodulation of Spike Timing.

*The Annual Meeting of Society for Cognitive Neuroscience, Boston, MA.* March 1997. PhD Thesis Award presentation: A neural mechanism of differential integration and recognition memory.

*Siemens Corporate Research, Learning Department, Princeton, NJ. Host: Steve J. Hanson.* April 1995. To recognize the new, must one remember the

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old? --- GABAergic modulation and its behavioral and computational consequences.

### Abstracts or Poster Presentations at Meetings

**Poster:** A. J. Privitera and **A. C. Tang**. Reliability and variability of the P3 network configuration revealed by multi-resolution source-space analysis. Cognitive Neuroscience Society Annual Meeting **2020**. May 2-5, 2020, Online. Poster G176.

**Poster:** R. Sun, C. Chan, J. Hsiao, **A. C. Tang**. Tracking horizontal eye movement via ocular components extracted from EEG by second order blind identification (SOBI). Cognitive Neuroscience Society Annual Meeting **2020**. May 2-5, 2020, Online. Poster F6.

**Poster:** R. Sun, C. Chan, J. Hsiao, A. C. Tang. Validation of SOBI-DANS method for automatic identification of horizontal and vertical eye movement components from EEG . Cognitive Neuroscience Society Annual Meeting **2020**. May 2-5, 2020, Online. Poster.

**Poster:** **A. C. Tang** and G. Ouyang. Isolating Articulation Artefact from Natural Reading Aloud: Implication for Neurobiology of Language. OHBM (Organization for Human Brain Mapping) 2018 Annual Meeting. June 17-21, **2018**, Suntec Singapore, Singapore

**Poster:** G. Ouyang and **A. C. Tang**. A Spatial-Temporal Clustering Algorithm Uncovering Shared EEG Components Across Task Paradigms. OHBM (Organization for Human Brain Mapping) 2018 Annual Meeting. June 17-21, **2018**, Suntec Singapore, Singapore

**Poster:** X. Niu, G. Ouyang, Y. Hua, and **A. C. Tang**. P300 and Theta-Band Oscillation: Two Expressions of a Single Novelty Response. Cognitive Neuroscience Society Annual Meeting 2018. March 24-27, **2018**, Sheraton Hotel, Boston, U.S

**Poster:** H. Zhong, G. Ouyang, Y. Hua, and **A. C. Tang**. EEG-Based Source Imaging Revealed Lower Beta-Band Top-Down Modulation of Early Visual Areas. Cognitive Neuroscience Society Annual Meeting 2018. March 24-27, **2018**, Sheraton Hotel, Boston, U.S

**Poster:** G. Ouyang, Y. Hua, C. Zhou, and **A. C. Tang**. Novelty Enhances The Reliability and Timing Consistency of Neuronal Source Response. Cognitive Neuroscience Society Annual Meeting 2018. March 24-27, **2018**, Sheraton Hotel, Boston, U.S

**Poster:** G. Ouyang, Y. Hua, W. R. Fung, C. Zhou, and **A. C. Tang**. Novelty Reduces Trial-to-trial Variability in the Latency of Cortical Neuronal

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*Responses*. Society for Neuroscience 2017. November 11 - 15, **2017**, Walter E. Washington Convention Center, Washington, DC, U.S.

**Poster: A. C. Tang**, W. R. Fung, Y. Hua, and L. Qin. *Single-Subject Source Analysis from Continuous Resting State EEG*. Society for Neuroscience 2017. November 11 - 15, **2017**, Walter E. Washington Convention Center, Washington, DC, U.S.

**Poster: A. C. Tang**, Y. Zhang, and X. Zhou. *Quantifying Early Visual Expectation Effect for Facial Attractiveness—A Source ERP Study*. SPR (Society for Psychophysiological Research) 57<sup>th</sup> Annual Meeting. October 11 – 15, **2017**. The Hofburg, Vienna, Austria.

**Poster: A. C. Tang**, J. Mårtensson, Y. Hua, and J. Eriksson. *Origin of Cerebral Asymmetry: Testing the Hippocampal Hypothesis*. Human Brain Mapping **2017**.

**Poster:** S. M. Dinces, L. N. Rowell, J. F. L. Pinner, S. N. Hile, M. E. Thompson, **A. C. Tang**, and R. D. Annett. *Exploring the Meaning of Parental and Child Associations in Stress Regulation*. Annual Meeting of the Society for Biological Psychiatry. May 12-14, **2016**, Atlanta, GA.

**Poster: A. C. Tang**. *On Form of Inquiry and Reproducibility*. Annual Meeting of the Society for Biological Psychiatry. May 12-14, **2016**, Atlanta, GA.

**Poster:** S. M. Dinces, L. N. Rowell, J. F. L. Pinner, S. N. Hile, M. E. Thompson, **A. C. Tang**, and R. D. Annett. *The experience of cancer affects the relationship between parent and child hypothalamic pituitary adrenal (HPA) function*. Annual Meeting of the Society for Neuroscience. October 18, **2015**, Chicago, IL.

**Poster:** S. M. Dinces, S. N. Hile, L. N. Rowell, J. F. L. Pinner, R. E. Rieger, N. C. Moss, **A. C. Tang** and R. D. Annett (**2015**). *Child Executive Functioning Is Predicted by Parent Hypothalamic Pituitary Adrenal (hpa) Function in Both Cancer Survivors and Healthy Control Children*. Developmental Psychobiology.

**Poster:** J. F. L. Pinner, S. M. Dinces, R. D. Romeo, B. S. McEwen, and **A. C. Tang** (**2014**). *What the mother does at night time tells us about maternal self-stress regulation*. Annual Meeting of the Society for Neuroscience. Also presented at the Annual meeting of the International Society for Developmental Psychobiology.

**Poster:** S. M. Dinces, L. N. Rowell, J. F. L. Pinner, S. N. Hile, M. E. Thompson, **A. C. Tang**, and R. D. Annett (**2014**). *Consistent familial warmth predicts child cortisol levels*. Annual meeting of the International Society for Developmental Psychobiology.

**Poster: A. C. Tang**, B. K. Reeb-Sutherland, R. D. Romeo, B. S. McEwen, and **A. C. Tang** (**2013**). *Three moments, three variables, and three*

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*predictions: why some measures of individual circulating corticosterone (CORT) are better functional markers than others.* Annual Meeting of the Society for Neuroscience.

**Poster:** S. M. Dinces, Pinner, J. F., R. D. Romeo, B. S. McEwen, and **A. C. Tang (2013)**. *The Importance of Matching Variability between Maternal and Non-maternal Aspects of the Neonatal Environment.* Developmental Psychobiology, 55(7), 770.

**Poster:** S. M. Dinces, R. D. Romeo, B. S. McEwen, and **A. C. Tang (2013)**. *Context-dependent maternal care modulates early experience effect on offspring stress regulation.* Annual Meeting of the Society for Neuroscience.

**Poster:** S. M. Dinces, J. F. L. Pinner, R. D. Romeo, B. S. McEwen, and **A. C. Tang (2013)**. *The importance of matching variability between the maternal and non-maternal environments.* Annual Meeting of the Society for Neuroscience.

**Poster:** S. M. Dinces, R. D. Romeo, B. S. McEwen, and **A. C. Tang (2013)**. *Maternal Glucocorticoids Modulate the Effects of Novelty on Adult Offspring HPA function.* The Society of Biological Psychiatry, San Francisco, CA.

**Poster:** S. M. Dinces, J. F. L. Pinner, R. D. Romeo, B. S. McEwen, and **A. C. Tang (2013)**. *The importance of matching variability between the maternal and non-maternal environments.* The Society of Biological Psychiatry, San Francisco, CA.

**Poster:** Y. Zhang, X. Zhou, and **A. C. Tang (2012)**. *Detection of beauty-related activation by SOBI.* **Poster presented the Annual Meeting of the Organization for Human Brain Mapping.** Beijing, China.

**Talk:** Y. Zhang, X. Zhou, and **A. C. Tang (2012)**. *Synchronized network activity as the origin of a visual P300 component elicited by facial stimuli during facial attractiveness judgment.* Annual Meeting of the Society for Neuroscience.

**Poster:** S. M. Dinces, R. D. Romeo, B. S. McEwen, and **A. C. Tang (2012)**. *Modulation of novelty effects on adult offspring HPA function by maternal circulating glucocorticoids.* The International Society for Developmental Psychobiology, New Orleans, LA.

**Poster:** S. M. Dinces, R. D. Romeo, B. S. McEwen, and **A. C. Tang (2012)**. *Modulation of novelty effects on adult offspring HPA function by maternal circulating glucocorticoids.* Society for Neuroscience, New Orleans, LA.

**Poster:** S. M. Dinces, R. D. Romeo, B. S. McEwen, and **A. C. Tang (2011)**. *What mediates the effect of postnatal maternal self-stress regulation on offspring behavioral inhibition during adulthood.* Sackler Colloquia: Biological Embedding of Early Social Adversity: From Fruit Flies to Kindergartners. Irvine, CA.

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**Poster:** S. M. Dinces, R. D. Romeo, B. S. McEwen, and **A. C. Tang (2011)**. *What mediates the effect of postnatal maternal self-stress regulation on offspring behavioral inhibition during adulthood*. Society for Neuroscience Annual Meeting. Washington DC.

**Poster:** H. Jiang, R. D. Romeo, and B. S. McEwen, and **A. C. Tang (2011)**. *Setting the direction of adaptation in offspring non-associative learning by postnatal maternal self-stress regulation*. Society for Neuroscience Annual Meeting. Washington DC.

**Poster:** S. M. Dinces, R. D. Romeo, and B. S. McEwen, and **A. C. Tang (2011)**. *What mediates the effect of postnatal maternal self-stress regulation on offspring behavioral inhibition during adulthood*. International Society for Developmental Psychobiology Annual Meeting. Washington DC.

**Poster:** H. Jiang, Z. Yang, A. A. Chen, Y. Zhang, R. D. Romeo, B. S. McEwen, and **A. C. Tang (2010)**. *Effects of novelty exposure on plasticity of acoustic startle response --- modulation by maternal stress physiology*. Society for Neuroscience Annual Meeting. San Diego, CA.

**Poster:** H. Jiang, Z. Yang, A. A. Chen, Y. Zhang, R. D. Romeo, B. S. McEwen, and **A. C. Tang (2010)**. *Effects of novelty exposure on plasticity of acoustic startle response --- modulation by maternal stress physiology*. International Society for Developmental Psychobiology Annual Meeting. San Diego, CA. (identical content to previous Poster at SFN).

**Poster:** Z. Yang and **A. C. Tang (2009)**. *Spatial Memory Enhancement Induced by Adult Intervention Is Comparable to that Induced by Neonatal Intervention*. Society for Neuroscience Annual Meeting. Chicago.

**Poster:** **A. C. Tang**, Z. Yang, R. D. Romeo, A. Plakio, D. Delvecchio, J. Youngblood, A. Gonzales, and B. S. McEwen(2009). *A good stress regulator begets a good stress regulator: predicting offspring stress regulation from maternal stress regulation*. Society for Neuroscience Annual Meeting. Chicago.

**Poster:** A. A. Chen, Y. Zhang, R. D. Romeo, H. Jiang, Z. Yang, B. S. McEwen, and **A. C. Tang (2009)**. *Corticosterone Stress Response Profile as Predictors of Long-term Habituation of Acoustic Startle Response*. Developmental Psychobiology.

**Poster:** Y. Zhang, A. A. Chen, R. D. Romeo, H. Jiang, Z. Yang, B. S. McEwen, and **A. C. Tang (2009)**. *Influence of Traumatic Experience on the Association between Basal Circulating Corticosterone Concentration and Short-term Habituation of Acoustic Startle Response*. Developmental Psychobiology.

**Poster:** A. A. Chen, Y. Zhang, R. D. Romeo, H. Jiang, Z. Yang, B. McEwen, and **A. C. Tang (2009)**. *Corticosterone Stress Response Profile as a Predictor*

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*of Long-Term Plasticity in the Acoustic Startle Response*. International Society for Developmental Psychobiology Annual Meeting. Chicago.

**Poster:** Y. Zhang, A. A. Chen, R. D. Romeo, H. Jiang, Z. Yang, B. McEwen, and **A. C. Tang (2009)**. *Influence of Traumatic Experience on the Association between Basal Circulating Corticosterone Concentration and Short-term Habituation of Acoustic Startle Response*. International Society for Developmental Psychobiology Annual Meeting. Chicago.

**Poster:** **A. C. Tang**, Z. Yang, R. D. Romeo, A. Rosa, A. Plakio, A. Gonzales, and B. S. McEwen (2008). *Two sources of maternal modulations: Mother's stress hormone versus mother's behavior*. International Society for Developmental Psychobiology.

**Poster:** Z. Yang, J. Youngblood, and **A. C. Tang (2008)**. *Is there a critical period for novelty exposure-induced enhancement in spatial memory?* International Society for Developmental Psychobiology Annual Meeting.

**Poster:** M. T. Sutherland, Z. Yang, and **A. C. Tang (2008)**. *When more stress hormone is good: reduced interference in a Stroop task associated with higher salivary cortisol*. A Brain Research Meeting: Stress, Coping and Disease.

**Poster:** Z. Yang, M. T. Sutherland, and **A. C. Tang (2008)**. *Who performs better under interference? Prediction from stress response profile*. A Brain Research Meeting: Stress, Coping and Disease.

**Poster:** Z. Yang, R. D. Romeo, A. M. Korzekwa, B. C. Reeb, B. S. McEwen, and **A. C. Tang (2008)**. *Predicting adult stress response by neonatal events*. A Brain Research Meeting: Stress, Coping and Disease.

**Talk:** Z. Yang, R. D. Romeo, B. S. McEwen and **A. C. Tang (2008)**. *Beyond maternal care: modulation of early stimulation effects by maternal physiology*. Society for Neuroscience.

**Poster:** M. T. Sutherland, Z. Yang, and **A. C. Tang (2008)**. *When more stress hormone is good: Reduced interference in a Stroop task is associated with higher salivary cortisol*. Society for Neuroscience.

**Poster:** **A. C. Tang**, K. G. Akers, Z. Yang, D. P. Delvecchio, B. C. Reeb, R. D. Romeo, and B. S. McEwen (2008). *Social competitiveness and plasticity of neuroendocrine function in old age: influence of neonatal novelty exposure and maternal care reliability*. Society for Neuroscience.

**Poster:** Z. Yang, A. Plakio and **A. C. Tang (2008)**. *Early experience permanently reduces behavioral inhibition towards novelty*. Association for Psychological Science.

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**Poster:** D. P. Delvecchio, Z. Yang, K. G. Akers, and **A. C. Tang (2008)**.

*Enhancement of social competitiveness among senescent rats by neonatal experience of novelty.* Association for Psychological Science.

**Poster:** P. Sun, Z. Yang, A. Korzekwa, M. Sutherland, and **A. C. Tang (2007)**.

*Determining Gender From Local Network Synchronization in the Frontal Cortex.* First International Conference on Cognitive Neurodynamics.

**Poster:** Z. Yang, **A. C. Tang**, A. M. Korzekwa, and B. C. Reeb (2007).

*Between-sibling and between-family difference in body weight—the role of neonatal novelty exposure and maternal stress response.* International Society for Developmental Psychobiology.

**Poster:** **A. C. Tang**, Z. Yang, A. M. Korzekwa, B. C. Reeb, R. Romeo, and B.

McEwen (2007). *Dissociating the effects of neonatal novelty exposure and maternal stress response on adult offspring spatial memory.* International Society for Developmental Psychobiology.

**Poster:** M. T. Sutherland and **A. C. Tang (2007)**. *Limited modulation of*

*Stroop interference effects by up to 3 preceding trials.* Society for Neuroscience.

**Poster:** M. Nakazawa, Z. Cui, N. Furl, R. J. Dolan, and **A. C. Tang (2007)**.

*Testing activation-timing dependent plasticity in human cortical networks.* Society for Neuroscience.

**Poster:** Z. Yang, R. D. Romeo, M. Nakazawa, A. M. Korzekwa, B. C. Reeb,

B. S. McEwen, and **A. C. Tang (2007)**. *Priming Adult Stress Response by Neonatal Novelty Exposure.* Society for Neuroscience.

**Poster:** **A. C. Tang**, M. T. Sutherland, P. Sun, Y. Zhang, M. Nakazawa, A. M.

Korzekwa, Z. Yang, and M. Ding (2007). *Feed-forward versus Feedback Processing in the Human Brain: Distinct Directional Influences Revealed by Integrating SOBI and Granger Causality.* Society for Neuroscience.

**Poster:** P. Sun, Z. Yang, A. M. Korzekwa, M. T. Sutherland, M. Nakazawa,

and **A. C. Tang (2007)**. *Determining Gender from Local Network Synchronization in the Frontal Cortex.* Society for Neuroscience.

**Talk:** A. Korzekwa, P. Sun, P. G. Grieve, J. R. Isler, M. M. Myers, W. P. Fifer,

and **A. C. Tang (2007)**. *Measuring Feed-forward and Feed-back Influence in the Brains of 2-Day Old Human Infants by Integrating SOBI and Granger Causality.* Society for Neuroscience.

**Talk:** **A. C. Tang**, M. T. Sutherland, P. Sun, Y. Zhang, M. Nakazawa, A.

Korzekwa, Z. Yang, and M. Ding (2007). *Top-Down versus Bottom-up Processing in the Human Brain: Distinct Directional Influences Revealed by Integrating SOBI and Granger Causality.* Independent Components Analysis.



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**Poster:** Z. Yang, B. C. Reeb, and **A. C. Tang (2007)**. *Impact of Mother Rats' Physiological Stress Response on Adult Offspring's Body Weight*. Association for Psychological Science.

**Poster:** **A. C. Tang**, K. G. Akers, A. M. Korzekwa, and B. C. Reeb (2007). *Early Life Modulators of Adult Social Engagement during Dyadic Interaction*. Association for Psychological Science.

**Poster:** A. M. Korzekwa, Z. Yang, B. C. Reeb, and **A. C. Tang (2007)**. *Creation of between-sibling differences: an induction by 60-minute neonatal non-shared environment*. Association for Psychological Science.

**Poster:** M. Nakazawa, B. C. Reeb, N. M. Vandiver, and **A. C. Tang (2007)**. *Creating Temperamental Differences between Sibling Rats via 60-Minutes of Non-Shared Environment*. Association for Psychological Science.

**Poster:** B. C. Reeb, R. D. Romeo, K. G. Akers, B. S. McEwen, and **A. C. Tang (2006)**. *Maternal modulation hypothesis as an alternative to maternal mediation hypothesis*. Society for Neuroscience.

**Poster:** Y. Zhang, M. T. Sutherland, **A. C. Tang**, and M. Ding (2006). *Spatiotemporal Dynamics of SOBI recovered EEG components: A coherence and Granger Causality analysis*. Society for Neuroscience.

**Poster:** M. T. Sutherland and **A. C. Tang (2006)**. *Reliable detection of bilateral activation in human primary somatosensory cortex by unilateral median nerve stimulation*. Society for Neuroscience.

**Poster:** M. Nakazawa, K. G. Akers, R. D. Romeo, J. A. Connor, B. S. McEwen, and **A. C. Tang (2006)**. *Effects of neonatal anoxia and mild stimulation on hippocampal synaptic plasticity and social recognition memory*. Society for Neuroscience (Also selected for publication in the 2006 Society for Neuroscience Press Book).

**Talk:** B. C. Reeb, R. D. Romeo, K. G. Akers, B. S. McEwen, and **A. C. Tang (2006)**. *Maternal modulation hypothesis as an alternative to maternal mediation hypothesis*. International Society for Developmental Psychobiology.

**Poster:** M. Nakazawa, A. M. Korzekwa, K. G. Akers, and **A. C. Tang (2006)**. *Ability to obtain reciprocal social interest is impaired by neonatal oxygen deprivation*. International Society for Developmental Psychobiology.

**Poster:** A. M. Korzekwa, E. Jaetao, B. C. Reeb, and **A. C. Tang (2006)**. *Negative maternal behavior predicts offspring's spatial cognition*. International Society for Developmental Psychobiology.

**Talk:** **A. C. Tang**, K. G. Akers, B. C. Reeb, A. M. Korzekwa, L. N. Rogers (2006). *What makes an adaptive rat—“better” mothers or early exposure to novelty?* International Society for Developmental Psychobiology.

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**Talk:** K. G. Akers, B. C. Reeb, R. D. Romeo, B. S. McEwen, J. Kagan, R. J. Dolan, and **A. C. Tang (2006)**. *“Social control” between two strangers—impact of neonatal novelty exposure on adult social reciprocation*. International Society for Developmental Psychobiology.

**Talk:** B. C. Reeb, R. D. Romeo, K. G. Akers, B. S. McEwen, **A. C. Tang (2006)**. *Maternal modulation hypothesis as an alternative to maternal mediation hypothesis*. International Congress of Neuroendocrinology.

**Poster:** M. Nakazawa, A. M. Korzekwa, K. G. Akers, and **A. C. Tang (2006)**. *Ability To Obtain Social Interest Is Impaired By Neonatal Oxygen Deprivation*. Developmental Psychobiology.

**Poster:** K. G. Akers, B. C. Reeb, R. D. Romeo, B. S. McEwen, J. Kagan, R. J. Dolan, and **A. C. Tang (2006)**. *“Social Control” Between Two Strangers-impact Of Neonatal Novelty Exposure on Adult Social Interaction*. Developmental Psychobiology.

**Poster:** **A. C. Tang**, Akers, K. G., B. C. Reeb, A. M. Korzekwa, and L. N. Rogers (2006). *What Makes an Adaptive Rat-“better” Mothers or Early Exposure to Novelty?* Developmental Psychobiology.

**Poster:** M. Nakazawa and **A. C. Tang (2005)**. *Effects of Neonatal Novelty Exposure on Anoxia-Induced Pathological Behavior in the Context of Environmental and Social Novelty*. International Behavioral Neuroscience Society.

**Poster:** K. G. Akers and **A. C. Tang (2005)**. *Effect of neonatal novelty exposure on social competition*. International Behavioral Neuroscience Society.

**Poster:** **A. C. Tang**, K. C. Chang, M. T. Sutherland, and C. J. McKinney (2004). *Predicting single-trial performance in a target detection task from high density EEG*. *Neuroimage*, 22, e1751-e1752.

**Poster:** K. G. Akers, M. Nakazawa, B. C. Reeb, **A. C. Tang**, R. D. Romeo, and B. S. McEwen (2004). *Neonatal Stimulation and Adult Social Control*. Society for Behavioral Neuroendocrinology.

**Talk:** **A. C. Tang** and B. C. Reeb (2004). *Modification of Social Memory and Brain Asymmetry by Neonatal Novelty Exposure*. American Psychological Society.

**Poster:** M. T. Sutherland, C. J. McKinney, and **A. C. Tang (2004)** *Blind Source Separation Allows for the Reliable Detection of Ipsilateral Primary Somatosensory Cortex Activation*. Society for Cognitive Neuroscience.

**Talk:** **A. C. Tang**, B. C. Reeb, M. Nakazawa, R. D. Romeo, K. G. Akers, and B. S. McEwen (2003). *Neonatal Novelty Exposure Modulates Adult*

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*Corticosterone Stress Response Elicited by the Morris Water Maze Test.* International Society for Developmental Psychobiology.

**Poster:** K. G. Akers, B. C. Reeb, and **A. C. Tang (2003).** *Neonatal Novelty Exposure Modulates Sex Differences in Turning Bias.* International Society for Developmental Psychobiology.

**Poster:** B. C. Reeb and **A. C. Tang (2003)** *Sex Differences in Social Recognition Memory in a Longitudinal Study of the Rat.* International Society for Developmental Psychobiology.

**Poster:** M. Nakazawa, B. C. Reeb, A. Murley, and **A. C. Tang (2003).** *Daily Changes in the Rat's Spontaneous Turning Behavior during the First Three Weeks of Post-Natal Life.* International Society for Developmental Psychobiology.

**Poster:** K. G. Akers, B. C. Reeb, and **A. C. Tang (2003).** *Neonatal Novelty Exposure Modulates Sex Differences in Turning Bias.* Society for Neuroscience.

**Poster:** B. C. Reeb, T. A. Loring, D. E. Worth, N. A. Malaszenko, and **A. C. Tang (2003).** *Detection and Qualitative Analysis of Single-trial Brain Evoked Response using Independent Component Analysis and Multi-scale Metrics.* Society for Neuroscience.

**Poster:** M. T. Sutherland, C. J. McKinney, and **A. C. Tang (2003).** *Evidence for Plasticity in Somatosensory Cortex after Paired Right and Left Median Nerve Stimulation.* Society for Neuroscience.

**Poster:** C. J. McKinney, M. T. Sutherland, N. A. Malaszenko, B. C. Reeb, and **A. C. Tang (2003).** *SOBI Analysis of Electroencephalographic Data and Exploration of Critical Parameters.* Society for Neuroscience.

**Poster:** **A. C. Tang**, C. J. McKinney, M. T. Sutherland, L. Parra, B. C. Reeb, N. A. Malaszenko, P. Sajda, and A. Gerson (2003). *Source Localization from High Density EEG Data during a Real World Task.* Society for Neuroscience.

**Poster:** M. Nakazawa, **A. C. Tang**, B. C. Reeb, H. Sisti, R. D. Romeo, and B. S. McEwen (2003). *Effects of Estrogen Replacement on Hypothalamic-Pituitary-Adrenal (HPA) Axis, Social Recognition, and Open Field Behavior.* Society for Neuroscience.

**Poster:** **A. C. Tang**, C. McKinney, and M. Sutherland (2003). *Application of an ICA Algorithm for the Analysis of Electroencephalographic Data.* Society for Cognitive Neuroscience.

**Poster:** C. McKinney, M. Sutherland, and **A. C. Tang (2003).** *Somatosensory to Visual Cross-Modal Interaction: Evidence from Visual Alpha Resetting by Median Nerve Stimulation.* Society for Cognitive Neuroscience.

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**Poster:** M. Sutherland, C. McKinney, and **A. C. Tang (2003)**. *Rapid Interhemispherical Associative Learning in Human Somatosensory Event-Related Potentials*. Society for Cognitive Neuroscience.

**Talk:** **A. C. Tang** and N. A. Malaszenko (2002). *A Method for Reducing Computation Time Required by ICA: a demonstration using magnetoencephalography (MEG)*. Society for Neuroscience.

**Poster:** B. D Zou, **A. C. Tang**, and J. Connor (2002). *Neonatal Novelty Exposure Induces Enhancement in Long Term Depression (LTD) in the right hippocampus of adult rats*. Society for Neuroscience.

**Poster:** B. C. Reeb, M. Nakazawa, and **A. C. Tang (2002)**. *Neonatal Novelty Exposure Enhances Sex Difference in Social Interaction*. International Society for Developmental Psychobiology.

**Talk:** **A. C. Tang** and B. C. Reeb (2002). *Dynamics of Functional Brain Asymmetry Predict Changes in Social Investigation and is Modulated by Neonatal Novelty Exposure*. International Society for Developmental Psychobiology.

**Poster:** M. Caplan, B. C. Reeb, and **A. C. Tang (2002)**. *Neonatal Novelty Exposure Attenuates The Interfering Effects of Surprise/Uncertainty on Spatial Working Memory*. International Society for Developmental Psychobiology.

**Poster:** B. C. Reeb, B. Brown, and **A. C. Tang (2001)**. *Neonatal Novelty Exposure Enhances Social Recognition Memory in Adult Rats*. International Society for Developmental Psychobiology.

**Poster:** B. Zou and **A. C. Tang (2001)**. *The Adrenal Gland Weight Predicts Long-term Potentiation and in the CA1 of the hippocampus in adult female rats*. Society for Neuroscience.

**Poster:** **A. C. Tang**, N. A. Malaszenko, D. B. Phung, and C. J. Aine (2001). *Cross-modal Modulation and Plasticity of the Early Sensory Responses in the Human Visual and Auditory Systems: an MEG study*. Society for Neuroscience.

**Poster:** S. Jaramillo, **A. C. Tang**, G. Nolte, and B. A. Pearlmutter (2001). *Modulation of Single-Trial Visual Evoked Response Onset Times by Alpha-Band Oscillation*. Society for Neuroscience.

**Poster:** B. D. Zou and **A. C. Tang (2001)**. *Neonatal Novelty Exposure Induced Enhancement of Adult LTP and CORT Modulation are Lateralized to the Right Hippocampus in Adult Rats*. Society for Cognitive Neuroscience.

**Poster:** M. D. Caplan, T. Verstynen, and **A. C. Tang (2001)**. *Neonatal Novelty Exposure Modulates navigational strategies in the Morris Water Maze*. Society for Cognitive Neuroscience.

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**Poster:** A. C. Tang, S. A. Carter, B. A. Pearlmutter, N. A. Malaszenko, L. K. Anderson, C. J. Aine, and R. Christner (2001). *Rapid Modification of Populational Neuronal Response Onset Times via Hebbian Learning: a Non-Invasive Single-Trial Analysis of MEG Data*. Society for Cognitive Neuroscience.

**Poster:** L. Parra, A. C. Tang, B. A. Pearlmutter, Z. Zhang, and P. Sajda (2001). *Predicting Motor Commands Using Magnetoencephalography (MEG)*. Society for Cognitive Neuroscience.

**Poster:** T. D. Verstynen, R. Tierney, and A. C. Tang (2001). *Hippocampal Asymmetry Predicts Proficiency Of Dominant Paw Use in the Rat*. Society for Cognitive Neuroscience.

**Poster:** T. D. Verstynen and A. C. Tang (2000). *Effects of Neonatal Handling on "Handedness" in Rats*. Society for Cognitive Neuroscience.

**Poster:** R. Tierney, T. D. Verstynen, and A. C. Tang (2000). *Neonatal Stimulation Eliminates A Population Level Left-Bias In Hippocampal Volume*. International Society for Developmental Psychobiology.

**Poster:** B. Zou, B. C. Reeb, T. D. Verstynen, and A. C. Tang (2000). *Can Mom Tell Whether You've Left Home?--Evidence from Maternal Observations of the Rat*. International Society for Developmental Psychobiology.

**Poster:** S. A. Carter, A. C. Tang, B. A. Pearlmutter, L. K. Anderson, and R. Christner (2000). *Co activation Of Visual and Auditory Pathways Induces Changes in the Timing of Evoked Responses in Populations of Neurons: An MEG Study*. Society for Neuroscience.

**Poster:** B. Zou, G. Golarai, and A. C. Tang (2000). *Adult LTP Is Enhanced And Sensitized To Modulation By Corticosterone (CORT) After Neonatal Exposure To Novel Environment*. Society for Neuroscience.

**Talk:** A. C. Tang and J. Corey (1999). *Computing Novelty Using GABAergic Mechanisms in a Neural Network Model*. Society for Neuroscience.

**Poster:** J. Jones and A. C. Tang (1999). *Effects of Early Experience and Maternal Care Interaction on Cognitive Development in the Rat*. Society for Neuroscience.

**Poster:** T. Urbanski, L. Zamora, J. Jones, T. D. Verstynen, and A. C. Tang (1999). *Neonatal Handling Induced Enhancement in Multiple Cognitive Tasks and Its Neuroanatomical Bases*. Society for Neuroscience.

**Poster:** A. C. Tang, B. A. Pearlmutter, and M. Zibulevski (1999). *Response Time Variability in the Human Sensory and Motor Systems, an MEG study*. Computational Neuroscience Conference.

**Poster:** T. D. Verstynen and A. C. Tang (1999). *Cerebral Lateralization and Learning*. Society for Cognitive Neuroscience.

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**Poster: A. C. Tang** and L. Alvarado (1999). *Enhancing Spatial Episodic Memory Through Early Experience*. Society for Cognitive Neuroscience.

**Poster: J. Jones** and **A. C. Tang** (1999). *Maternal Influence on the Development of Offspring Spatial Episodic Memory*. Society for Cognitive Neuroscience.

**Poster: A. C. Tang**, L. Alvarado, T. Cesena, and Y. Wu (1998, March). *Developmental, behavioral and physiological studies of brain asymmetry and cognitive functions in rats*. In JOURNAL OF COGNITIVE NEUROSCIENCE (Vol. 10, pp. 61-61). 55 HAYWARD STREET, CAMBRIDGE, MA 02142 USA: MIT PRESS.

**Talk: J. Wolfe** and **A. C. Tang** (1998). *Neuromodulation of spike frequency adaptation and spike timing in neocortical neurons*. The Annual Computational Neuroscience Conference.

**Poster: J. Wolfe** and **A. C. Tang** (1998). *Cholinergic modulation of spike timing and spike rate*. Society for Neuroscience.

**Poster: A. C. Tang** (1998). *Relationship between cerebral lateralization and learning*. Society for Neuroscience.

**Poster: L. Alvarado** and **A. C. Tang** (1998). *The Effects of early experiences on functional lateralization and learning*. Society for Neuroscience.

**Talk: A. C. Tang**, A. M. Bartels, and T. J. Sejnowski (1997). *Effects of cholinergic noradrenergic, serotonergic, and histaminergic modulation of spiking in neocortical neurons*. Society for Neuroscience.

**Poster: A.M. Bartels**, **A. C. Tang**, and T. J. Sejnowski (1996). *The role of the afterhyperpolarization current in cholinergic enhancement of neuronal excitability under physiologically realistic fluctuating input*. Society for Neuroscience.

**Talk: A. C. Tang** and M. E. Hasselmo (1995). *To recognize the new, must one remember the old? GABAergic modulation and its behavioral and computational consequences*. The Annual Computational Neuroscience Conference.

**Poster: A. C. Tang** and M. E. Hasselmo (1995). *The GABA<sub>B</sub> receptor, input selective inhibition, and the representation of familiarity*. Society for Neuroscience.

**Poster: A. C. Tang** and M. E. Hasselmo (1994). *Selective suppression of intrinsic but not afferent fiber synaptic transmission by baclofen in the piriform (olfactory) cortex*. Society for Neuroscience.

**Poster: A. C. Tang** (1992). *The lost voice from the Ching Dynasty*. The 24th Annual Meeting of the International Society for History of the Behavioral and Social Sciences.

**Poster: A. C. Tang, C. X. Falk, L. B. Cohen, and J. Y. Wu (1992).** *The majority of the neurons in the Aplysia ganglion show unreliable response to siphon stimulation.* Society for Neuroscience.

**Poster: C. X. Falk, J. Y. Wu, L. B. Cohen, A. C. Tang, and Y. Cao (1992).** *Diverse effects of habituation in the gill-withdrawal of Aplysia.* Society for Neuroscience.

### Teaching philosophy and approach

On aims of education, I am influenced by Alfred North Whitehead. I share his belief that education is to produce individuals who possess both culture and expert knowledge in some particular field. Expert knowledge grounds our life so that we can enjoy culture—activity of thoughts, receptiveness to beauty and humane feelings.

On the approach to teaching, I am very much influenced by the graduate training I received from Harvard's Psychology Department, where the only required courses were Statistics and Experimental Design and History of Psychology. The former gave me a sound methodological foundation and the latter offered wisdom and limit of human knowledge. The rest is of my own design. Today, in both classroom teaching and mentoring in the laboratory, strong methodological training has been a consistent theme because poor methodology produces garbage that litters the scientific literature. In teaching about each scientific finding, I present it as a part of a history and never as an isolated conclusion.

On the style of teaching, I choose to be a hard but fair teacher. By challenging students with hard problems, they have a chance to discover something new about themselves. I teach students about recognizing the general forms of problems so that they can solve many problems that are merely variations of the same theme.

On the use of technology, I believe that technology should not be viewed as a substitute of a learner's memory but means for efficient search, collection, comparison of information and means for effective use such information in problem solving, including teaching and learning. I believe that memorization has its irreplaceable place in learning, reasoning, and discovery.

On the relationship between a teacher/mentor and students, I believe that the student sets the goal and the teacher is the supporter and advisor. The teacher's role in motivating the students is predicated on the student's own desire to get something out of his or her own education. To me a good teacher is one who helps each student to reach his or her own goals instead of making the student into an image of the teacher.

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## Courses taught or developed

The Learning Brain (master level)

Introduction to Cognitive Neuroscience (PhD level)

Research Design and Statistical Analysis (PhD level)

Imaging the Brain Using EEG – Part I: Data Analysis (PhD level)

Imaging the Brain Using EEG: Part II: Data Acquisition (PhD level)

Current Issues in Neuroscience for Education (master level)

Biomedical Signals and System (master level)

Statistical Principles (200 level)

Research Design (300 level)

Learning and Memory (200 level)

Brain and Behavior (200 level)

Seminar on Early Experience and Plasticity (400, 600 levels)

Seminar on Stress, Development, and Learning (400, 600 levels)

Seminar on Cognitive Neuroscience (400, 600 levels)

Seminar on Computational Neuroscience (400, 600 levels)

Seminar on Blind Source Separation Techniques for EEG Signal Processing  
(400, 600 levels)

Undergraduate Research Problems (400 level)

Graduate Research Problems

Master's thesis projects

Doctoral dissertations

## Ad hoc reviewer for

Science

Journal of Neuroscience

Hippocampus

Behavioral Neuroscience

Frontiers of Neuroscience

Frontiers of Behavioral Neuroscience



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Stress

Hormone and Behavior

Physiology and Behavior

Journal of Neurophysiology

Neuroscience letters

Neuroscience.

Animal Behavior

Laterality

Child Development

NeuroImage

Psychophysiology

Neural Computation

IEEE Transaction for Biomedical Engineering

International Journal of Computational Intelligence and Neuroscience

#### Other professional services

Inaugural Director, the Laboratory of Neuroscience for Education, Faculty of Education, the University of Hong Kong

Editorial Board member, Brain Science Advances (2018-2023)

Editorial Board member, Information and Learning Science (2017)

Research Committee, Faculty of Education, the University of Hong Kong

Review editor, editorial board of Frontiers in Behavioral Neuroscience (2013)

Board of directors, International Society for Developmental Psychobiology (2007-2009)

Panelist for NSF grant review (2010, 2011)

Panelist for NIH grant review (2008, 2011)

UNM Faculty Senate, senator (2006-2009)

#### Psychology Department services:

Animal care and use (on-going except when on leave)

Computer and web committee (2005-2008)

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Library liaison (2008-2012)

Admissions committee (2009-2012)

IRB committee (on-going except 2009, 2012-2015)

Search committees (2)

Grant committee (Fall 2014)

Colloquium Committee (1997-1999, 2014)

### Works in progress

Privitera A, Sun R, & Tang AC. Can the p300 component be localized from 32 channel EEG?

Sun R, Privitera A, & Tang AC. How much EEG data is needed to localize the P300 component?

Niu XY, Zsang E, Sun R, Fung R, Tang AC. Novelty induced theta power increase in the human visual cortex predicts reaction time.

Tang AC, SUN R, & Zhou XL. Representation of top-down and bottom-up information processing in the occipital cortex: a facial attractiveness EEG study. In preparation.

Tang AC, Dinces SM, Romeo RD, McEwen BS. The role of context-dependent maternal care reliability in the development of offspring HPA regulation. In revision. Biological Psychiatry.

Making a child a better learner: a perspective on aims of education. Based on talk given to the Faculty of Education, University of Hong Kong.

On natures of causal inference and public consumption of neuroscientific findings. For Perspectives in Psychological Science.

Neonatal novelty exposure enhances adult social engagement of conspecific and its modulation by maternal self-stress regulation.

Re-examination of the presumed causal role by quantity of maternal care: Preferential prediction by maternal HPA regulation.

Prediction versus perception: source of individual differences.

The experience of cancer affects the relationship between parent and child hypothalamic pituitary adrenal (HPA) function.

Consistency in Familial Warmth Predicts Child Cortisol Levels.

Nursing mother with and without sleep: impact on offspring's response to early life intervention.

Three moments, three variables, and three predictions: why some measures of individual circulating corticosterone (CORT) are better functional markers than others

When more stress hormone is good: reduced interference in a Stroop task associated with higher salivary cortisol.

Determining Gender from Local Network Synchronization in the Frontal Cortex.

Top-Down versus Bottom-up Processing in the Human Brain: Distinct Directional Influences Revealed by Integrating SOBI and Granger Causality.