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EDUCATION/DEGREES EARNED

9/2003- 6/2008 *Ph.D Program*, Institute of Biophysics, Chinese Academy of Sciences, Beijing
Under Dr. Jufang he and Dr. Shigang he
9/1999- 6/2003 *Bachelor of Science*, Wuhan University, Wuhan, Hubei Province

EMPLOYMENT HISTORY

6/14 – present *Professor*, Zhejiang University, Hangzhou, China
5/2012–5/2014 *Postdoctoral Research Associate*, Baylor College of Medicine, (Dora lab moved to Baylor).
12/2009- 5/2012 *Postdoctoral Research Associate*, Washington University School of Medicine, St Louis, MO.
Under Dr. Dora angelaki.
8/2009–10/2009 *Research Associate*, The Hong Kong Polytechnic University
Under Dr.Jufang he in his Hongkong lab.

HONORS and AWARDS

11/2017 LimPorYen tech award
11/2017 Hangzhou 521 Talent Program
11/2016 Zhejiang 1000 Talent Program

PUBLICATIONS

RESEARCH ARTICLES IN REFEREED JOURNALS (* Corresponding author; ^{1st} Co-first author)

ZIINT Papers (6):

Yu, X.J.*, J.D. Dickman, G.C. DeAngelis, and D.E. Angelaki*, *Neuronal thresholds and choice-related activity of otolith afferent fibers during heading perception*. Proc Natl Acad Sci U S A, 2015. **112**(20): p. 6467-72. (IF:9.423 ;Cite:7)

This is the first paper to seek the choice signal in the first order neuron in the system neuroscience. I designed the project, collected and analysed the data, and wrote the paper. J.D. Dickman collected data, G.C. DeAngelis analysed the data, D.E. Angelaki designed and supervised the project, analysed the data, and wrote the paper.

Xu, X.X., Y.Y. Zhai, X.K. Kou, and X. Yu*, *Adaptation facilitates spatial discrimination for deviant locations in the thalamic reticular nucleus of the rat*. Neuroscience, 2017. **365**: p. 1-11. (IF:3.2769 ;Cite:2)

This is the first paper to characterize the stimulus specific adaptation and novelty detection in the spatial domain on the neural level. I designed and supervised the project, analysed the data, and wrote the paper. My postdoc Xu X.X., my student Y.Y. Zhai, and my technician X.K. Kou together collected and analysed the data.

Rui, Y.Y., He J., Y.Y. Zhai, Z.H. Sun and X. Yu* (2018), *Frequency Dependent Stimulus-Specific Adaptation and Regularity Sensitivity in the Auditory Thalamus of Rat*. Neuroscience (In press)

This is the first paper to explore regularity sensitivity in the subcortical area. I designed and supervised the

project, analysed the data, and wrote the paper. My student Rui, Y.Y., He J., Y.Y. Zhai and Z.H. Sun collected and analysed the data.

Laurens, J.^{1st}, S. Liu^{1st}, **X.J. Yu^{1st}**, R. Chan, D. Dickman, G.C. DeAngelis, and D.E. Angelaki*, *Transformation of spatiotemporal dynamics in the macaque vestibular system from otolith afferents to cortex*. Elife, 2017. **6**. (IF:8.303 ;Cite:1)

This is the first paper to compare the properties of spatiotemporal dynamics along the vestibular pathway. I collected and analysed the data of the vestibular nerve, and I was the co-first author of the paper. Laurens did the modeling work; S collected and analysed the data of vestibular nuclei; R. Chan, D. Dickman and G.C. DeAngelis analysed the data. D.E. Angelaki designed and supervised the project, analysed the data, and wrote the paper.

Ji D, Liu Z, Liu L, Low SS, Lu Y, **Yu X**, Zhu L, Li C & Liu Q. (2018). *Smartphone-based integrated voltammetry system for simultaneous detection of ascorbic acid, dopamine, and uric acid with graphene and gold nanoparticles modified screen-printed electrodes*. Biosensors & bioelectronics **119**, 55-62. (IF:8.2 ;Cite:0)
I contributed a portion of the experiment design in this paper

Ji, D., Xu, N., Liu, Z., Shi, Z., Low, S.S., Liu, J., Cheng, C., Zhu, J., Zhang, T., Xu, H., **Yu X**, Liu Q.. (2018). *Smartphone-based differential pulse amperometry system for real-time monitoring of levodopa with carbon nanotubes and gold nanoparticles modified screen-printing electrodes*. Biosensors & bioelectronics. (In press) (IF:8.2 ;Cite:0)
I contributed a portion of the experiment design in this paper

Previous Papers (7):

Yu, X.-J.^{1st}, J.S. Thomassen^{1st}, J.D. Dickman, S.D. Newlands, and D.E. Angelaki, *Long-term deficits in motion detection thresholds and spike count variability after unilateral vestibular lesion*. J Neurophysiol, 2014. **112**(4): p. 870-89. (IF:2.887 ;Cite:13)

I collected the data from the vestibular nerve, and J.S. Thomassen collected the data from the vestibular nuclei. We both analyzed the data, and wrote the paper. J.D. Dickman collected data with us. S.D. Newlands did the surgery. D.E. Angelaki designed and supervised the project, analysed the data, and wrote the paper.

Xu, X., X. **Yu, J.** He, and I. Nelken, *Across-ear stimulus-specific adaptation in the auditory cortex*. Frontiers in Neural Circuits, 2014. **8**. (IF:3.568 ;Cite:6)

I designed the project. XX collected and analysed the data. **J. He** and I. Nelken supervised the project, analysed the data and wrote the paper.

Yu, X.J., J.D. Dickman and D.E. Angelaki, *Detection thresholds of macaque otolith afferents*. J Neurosci, 2012. **32**(24): p. 8306-16. (IF:6.747 ;Cite:22)

I collected and analyzed the data, and wrote the paper. J.D. Dickman collected the data. D.E. Angelaki designed and supervised the project, analysed the data, and wrote the paper.

Yu, X.-J., X.K. Meng, X.X. Xu, and J. He, *Individual auditory thalamic reticular neurons have large and cross-modal sources of cortical and thalamic inputs*. Neuroscience, 2011. **193**: p. 122-31. (IF:3.3269 ;Cite:13)

I collected and analyzed the data, and wrote the paper. X.K. Meng and X.X. Xu collected the data. J. He designed and supervised the project, analysed the data, and wrote the paper.

Yu, X.-J., X.X. Xu, X. Chen, S. He, and J. He, *Slow recovery from excitation of thalamic reticular nucleus neurons*. J Neurophysiol, 2009. **101**(2): p. 980-7. (IF:2.887 ;Cite:26)

I designed the project, collected and analyzed the data, and wrote the paper. X.X. Xu and X. Chen collected the data. S. He analyzed the data. J. He supervised the project, analysed the data, and wrote the paper.

Yu XJ, He SG, He JF (2009) Dorsal Thalamus modulated by Thalamic Reticular Nucleus *Nature Protocol*: <http://www.nature.com/protocolexchange/protocols/590>

I designed the project, collected and analyzed the data, and wrote the paper. S. He analyzed the data. J. He designed and supervised the project, analysed the data, and wrote the paper.

Yu, X.J., X.X. Xu, S. He, and J. He, *Change detection by thalamic reticular neurons*. Nature Neuroscience, 2009. **12**(9): p. 1165-1170. (IF:14.975 ;Cite:111)

I designed the project, collected and analyzed the data, and wrote the paper. X.X. Xu collected the data. S. He analyzed the data. J. He designed and supervised the project, analysed the data, and wrote the paper.

WORKING PAPERS and BOOKS (3)

Zhai, Y.Y., Y. Tang and **X. Yu***, *Integrative Stimulus-Specific Adaptation of Natural Sounds in the Auditory Cortex of Awake Rat*. Under Review, 2018

This is the first paper to investigate the integration of different types of deviant cues in SSA. I designed and supervised the project, analysed the data, and wrote the paper. My student Zhai Y.Y. and my technician Y. Tang collected and analysed the data.

Zhai, Y.Y., J. He and **X. Yu***, *Spatial resolution in terms of firing rate, latency, and spike train in the auditory thalamocortical system* To be submitted, 2018.

We have finished the data collecting and now are analysing the data. I designed and supervised the project, analysed the data, and wrote the paper. My students Zhai, Y.Y., and J. He collected and analysed the data.

Liu, S. ^{1st}, **X.J. Yu^{1st}**, J. Laurens^{1st}, R. Chan, D. Dickman, G.C. DeAngelis, and D.E. Angelaki, *Transformation of spatiotemporal dynamics in the macaque vestibular system from canal afferents to cortex*. To be submitted, 2018.

I collected and analysed the data of the vestibular nerve, and I was the co-first author of the paper. Laurens did the modling work; Liu, S collected and analysed the data of vestibular neuclei; R. Chan, D. Dickman and G.C. DeAngelis analysed the data. D.E. Angelaki designed and supervised the project, analysed the data, and wrote the paper.

PATENTS

2017 An automatic self-learning device for rodents in detection and 2AFC behaviors (201711118678)

2018 An automatic self-learning device for primates (201810967816)

CONFERENCES

CONFERENCE & SYMPOSIUM ORGANIZER

Chair. Frontiers in Neuroscience and Technology 2016: Audition. Sept 24-25, 2016. Hangzhou

Organizer. Multisensory processing, APCV 2018. July 13-16. Hangzhou

Vice-Chair-elect. Gordon Research Conference-Neuroplasticity of Sensory Systems, 2020. Hongkong

Chair-elect. Gordon Research Conference-Neuroplasticity of Sensory Systems, 2022. Hongkong

PUBLISHED ABSTRACTS & CONFERENCE PRESENTATIONS

Yu XJ, He SG, He J (2006) Temporal response properties of the thalamic reticular nucleus neurons of the rat.

Society for Neuroscience 36th Annual Meeting, Atlanta, GA, October 14-18, 2006.

Yu XJ, He SG, He J (2007) Slow recovery from excitation of thalamic reticular nucleus neurons. Chinese Society for Neuroscience 7th Annual Meeting, Hangzhou, October 24-28, 2007.

- Yu XJ**, He SG, He J (2008) Novelty detection in the thalamic reticular nucleus. Society for Neuroscience 38th Annual Meeting, Washington DC, November 15-19, 2008
- Yu XJ**, J. D. DICKMAN, D. E. ANGELAKI (2011) Direction detection thresholds of macaque otolith and semicircular canal afferents 41st Annual Meeting, Washington DC, November 12-16, 2011.
- Yu XJ**, J. D. DICKMAN, D. E. ANGELAKI (2012) Detection thresholds of macaque otolith afferents 42st Annual Meeting, New Orleans, LA, Oct 13-17, 2012
- Yu XJ**, J. D. DICKMAN, D. E. ANGELAKI (2013) Efferent control of spike rate variability in the peripheral vestibular system 43st Annual Meeting, San Diego, CA, Nov 9-13, 2013.
- Zhai YY, Sun ZH, Gong Yumei, Tang Yi, **Yu XJ**, (2017) Integrative Stimulus-Specific Adaptation of Natural Sounds in The Auditory Cortex of Awake Rat. The 12th Biennial Conference of Chinese Neuroscience Society, Social Hill Hotel& Conventions, Tianjin, Oct 12-15, 2017

INVITED PRESENTATIONS

- ◆Naijin, The third auditory conference, October 2017
- ◆Tianjin, The 12TH biennial conference of Chinese neuroscience society, October 2017
- ◆Jinan, The second auditory conference, November 2016
- ◆Guangzhou, Dept. of physiology, Southern Medical University, November 2016
- ◆Hangzhou, International auditory conference, September 2016
- ◆Xichang, Science and technology symposia 2016, August 2016
- ◆City University of Hong Kong, July 2016
- ◆Wuzhen, The 11TH biennial conference of Chinese neuroscience society, September 2015

FUNDING

Current:

- 1) 2017- 2020 Mianshang grant from NSF, 31671081, **role: PI** (67 wan direct)
- 2) 2019-2022 Mianshang grant from NSF, 31872768, **role: PI** (59 wan direct)
- 3) 2017- 2019 The national key basic research program from MOST, SQ2017YFSF090164, **role: Co-PI** (20 wan)
- 4) 2015-2016 Fundamental Research Funds for Central Universities, **role: PI** (16 wan direct)
- 5) 2019-2020 Fundamental Research Funds for Central Universities, **role: Co-PI** (20 wan direct)

SERVICE

Review Committees

- 2017** Review Expert for Zhejiang Provincial Science and Technology Award
- 2018** Review Expert for China Innovation and Entrepreneurship Competition for Overseas Talents
- 2017-2018** Reviewer for NSF fund

Editorships

- 2017 - present Review Editor in Frontiers in Auditory Cognitive Neuroscience
- 2017 - present Review Editor in Frontiers in Behavioral Neuroscience

Journal Reviewer

Cerebral Cortex, Frontier in Neuroscience

Professional Organizations

Society for Neuroscience, Chinese Society for Neuroscience

COURSES

Courses taught at Zhejiang University:

Neuroscience 2017: Auditory system. lecturer. Fall 2017.

Neuroscience 2016: Auditory system. lecturer. Fall 2016.

Neuroscience 2015: Auditory system. lecturer. Fall 2015.

Courses taught outside Zhejiang University:

Neuroscience 2015: Auditory system. lecturer. Shanghai Jiaotong University. Fall 2015.

GRADUATE STUDENTS and POSTDOCTORAL RESEARCHERS under my supervision

POSTDOCTORAL RESEARCHERS

Current:

Zhihai SUN (2017 - present) Neuronal mechanism underlying SSA in MGB

Former:

Xinxu Xu(2015 –2016) Spatial adaptation in TRN

Currently research Associate at institute of neuroscience,shanghai

GRADUATE STUDENTS

Current:

Yuyin Zhai (2014 – present) Spatial perception in AC

Jie He (2016 – present) Populational SSA and MMN in AC

Yumei Gong (2015 – present) Neuronal correlates with novelty detection in primates MGB

Jie Xu (2016 – present) Neuronal correlates with novelty detection in primates AC