NINGYU ZHANG

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EDUCATION

June, 2021 **University College London, UK**

- Doctor of Philosophy in Behavioural Neuroscience

June, 2016 **Harvard University, USA**

- Visiting Graduate Scholar in Neuroscience (*GPA 4.0/4.0*)

November, 2015 **Imperial College London, UK**

- Master of Research in Experimental Neuroscience (*Distinction*)

August, 2014 **University College London, UK**

- Bachelor in Psychology (*Hons*)

July, 2011 **University College London, UK**

- Undergraduate Preparatory Certificates for Science and Engineering (*Distinction*)

RESEARCH EXPERIENCES

2016 - 2021 **Ph.D. Thesis, Institute of Behavioural Neuroscience, UCL, UK**

- *A tale of two direction codes in rat retrosplenial cortex: uncovering the neural basis of spatial orientation in complex space.*
- Supervised by Prof. Kate Jeffery.

2016 **Summer Research Fellow, RIKEN Brain Science Institute, Japan**

- *In vivo modifications of functional connectivity in mice visual cortex by optic stimulation*
- Supervised by Dr. Andrea Benucci.

2015 **Graduate Rotation, Institute of Cognitive Neuroscience, UCL, UK**

- *The role of wakeful rest in episodic memory generalization.*
- Supervised by Prof. Neil Burgess & Dr. Aidan Horner.

2015 **Graduate Rotation, Imperial College London, UK**

1. *Brain volume abnormalities correlate with neuropsychological impairments in Alzheimer's dementia: a voxel based morphometric study using MRI.*
   - Supervised by Dr. Robert Leech.
2. *Amyloid precursor protein modulates β-catenin distribution and Wnt signalling pathway: evidence in cell lines, transgenic mice model and human patients of Alzheimer's disease.*
   - Supervised by Dr. Magdalena Sastre.

2014 **Summer Internship, Institute of Neuroscience, CAS, Shanghai, China**

- *A toxin-induced mouse model of Parkinson's disease.*
- Supervised by Prof. Mu-Ming Poo

2013 - 2014 **Undergraduate Dissertation, Institute of Behavioural Neuroscience, UCL, UK**

- *Spatial learning by mice in a hexagonal maze: a behavioural study.*
- Supervised by Prof. Kate Jeffery

AWARDS & FUNDING

2019 UCL Studentship for postgraduate work
(£16,000, 1-year stipend in Completing Research Status)

2017 UCL Sully Scholarship for academic excellence in Ph.D. Year 2
(£750, the best departmental upgrade)

2016 China Scholarship Council Research Excellence Scholarship for Ph.D. study
(~£115,000, top 4% applicants worldwide for a 3-year full scholarship)

2016 RIKEN Brain Science Institute Summer Program Fellowship
($2,000, travel allowance)

PUBLICATIONS

- Xu, N.L. & **Zhang, N**. Neural circuit mechanisms of cognitive modulation in perceptual decision-making. (*In preparation)*
- **Zhang, N.** & Jeffery, K. Features dissociating egocentric from allocentric directional coding in simple and complex spaces. (*In preparation)*
- **Zhang, N.,** Grieves, R. & Jeffery, K. Environment symmetry drives a multidirectional code in rat retrosplenial cortex.
  Preprint available on *bioRxiv*: 10.1101/2021.08.22.457261
- Lomi, E., Mathiasen, M., Cheng, H., **Zhang, N**., Aggleton, J.P., Mitchell, A.S., & Jeffery, K. (2021). Evidence for two distinct retrosplenial cortex subcircuits. *Neurobiology of Learning and Memory,* 185.
- **Zhang, N** & Jeffery, K. (2019). Retrosplenial 'bi-directional' cells become tetra-directional in a fourfold-symmetric environment. Society for Neuroscience Abstracts 45: 694.26.
- **Zhang, N.,** Parr, C. J., Birch, A. M., Goldfinger, M. H., & Sastre, M. (2018). The amyloid precursor protein binds to β-catenin and modulates its cellular distribution. *Neuroscience Letters, 685*, 190-195.
- Mitchell, A. S., Czajkowski, R., **Zhang, N.,** Jeffery, K., & Nelson, A. J. (2018). Retrosplenial cortex and its role in spatial cognition. *Brain and Neuroscience Advances, 2*: 1-13.
- Wilson, J. J., Harding, E., Fortier, M., James, B., Donnett, M., Kerslake, A., O'Leary, A., **Zhang, N.,** & Jeffery, K. (2015). Spatial learning by mice in three dimensions. *Behavioural Brain Research, 289,* 125-132.

SCIENTIFIC COMMUNICATION

Poster presentations

- Zhang, N., Jeffery, K. Retrosplenial 'bi-directional' cells become tetra-directional in a fourfold-symmetric environment. Program No. 694.26. 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019.
- Zhang, N., Jeffery, K. Stay oriented: visual landmarks as dominant directional cues in the rat brain. Poster presented at the 10th Royal Institute of Navigation Conference, Egham, UK, 2019.
- Zhang, N., Jeffery, K. Bi-directional firing pattern in rat retrosplenial cortex is specific to environmental setting. Poster presented at the 2nd Interdisciplinary Navigation Symposium, Montréal, Canada, 2018.

Selected talks

- An environment-dependent directional code in retrosplenial cortex. Talk presentation at University Paris Descartes, Paris, France, 2019.
- An environment-dependent directional code in retrosplenial cortex. Talk presentation at the Department of Neurobiology, Harvard Medical School, Boston, MA, USA, 2019.
- How does the brain's 'compass' work in environments with different structures? Talk presentation at the 6th European Neuroscience Conference by Doctoral Students, London, UK, 2019.
- The neural basis of the sense of direction in rat retrosplenial cortex. Talk presentation at the Institute of Neuroscience, Chinese Academy of Science, Shanghai, China, 2019.

ACADEMIC SERVICE

Contributions to peer review

2018 – Present

Assisting the review of submitted manuscripts for *eLife*, *Neuron*, *Nature Communications*, *Nature Neuroscience*, with Prof. Kate Jeffery and Dr. Ninglong Xu

Teaching

2020 – 2021

Teaching fellow for undergraduate and A-level modules, designed and delivered online seminars including *Introduction to Cognitive Sciences*, *Developmental Psychology*, with Dr. Dénes Szűcs at Cambridge University.