

## Dr. Hsin-Hao Yu

Department of Physiology  
Building 13F, 26 Innovation Walk  
Monash University  
Clayton, VIC, 3800, Australia

Office +61-3-9905-2518  
Mobile +61-4-4926-9794

[hsin-hao.yu@monash.edu](mailto:hsin-hao.yu@monash.edu)  
[hhyu00@gmail.com](mailto:hhyu00@gmail.com)  
<http://hhyu.org>

### EDUCATION

- 1999 - 2007 **Department of Cognitive Science, University of California San Diego**  
Ph.D. in Cognitive Science “Organization of Receptive fields in V1 of the California Ground Squirrel”  
with Profs. Martin Sereno and Virginia de Sa  
Master thesis: “Intermediate-Level Shape Processing - fMRI and Modeling” with Prof. Martin Sereno
- 1994 - 1999 **Department of Applied Mathematics, National Chiao Tung University (Hsin-Chu, Taiwan)**  
B.S. in Applied Mathematics

### POSITIONS

- 2017 - **Department of Physiology, Monash University (Clayton, VIC, Australia)**  
Postdoctoral Research Scientist
- 2014 - 2016 **Department of Physiology, Monash University (Clayton, VIC, Australia)**  
Australian Research Council Discovery Early Career Researcher Award (DECRA) Fellow
- 2007 - 2013 **Department of Physiology, Monash University (Clayton, VIC, Australia)**  
Postdoctoral Research Scientist
- 2003 - 2005 **Department of Cognitive Science, UC San Diego (San Diego, CA, USA)**  
Research Assistant (Development of computational methods for receptive field mapping)
- 2001 - 2002 **Institute of Neural Computation, UC San Diego (San Diego, CA, USA)**  
Research Assistant (Analysis of EEG data with Independent Component Analysis)
- 1998 - 1999 **Foreign Language and Literature, National Chiao-Tung University (Hsin-Chu, Taiwan)**  
Research Assistant (Programmed models of sentence parsing in Chinese)

### AWARDS

- 2013 Australian Research Council Discovery Early Career Researcher Award (DECRA)
- 2013 Best Postdoctoral Oral Presentation Award, Bosch Institute Annual Scientific Meeting 2013
- 2010 School of Biomedical Sciences Travel Grant

### PUBLICATIONS

- **Yu H-H**, Atapour N, Chaplin TA, Worthy KH, Rosa MGP (2018) Robust visual responses and normal retinotopy in primate lateral geniculate nucleus following long-term lesions of striate cortex. *Journal of Neuroscience* 38, 3955-3970.
- Atapour N, Worthy KH, Lui LL, **Yu H-H**, Rosa MGP (2017) Neuronal degeneration in the dorsal lateral geniculate nucleus following lesions of primary visual cortex: comparison of young adult and geriatric marmoset monkeys. *Brain Structure Function* 222, 3283-3293..

- Knauer B, Majka P, Watkins KJ, Taylor AWR, Malamanova D, Paul B, **Yu H-H**, Bush AI, Hare DJ, Reser DH (2017) Whole-brain metallomic analysis of the common marmoset (*Callithrix jacchus*) *Metallomics* 9, 411-423.
- Chaplin TA, Rosa MGP, **Yu H-H** (2017) Scaling up the simian primate cortex: a conserved pattern of expansion across brain sizes. In *Evolution of Nervous Systems, Vol. 4: The Evolution of the Human Brain* (2nd Edition). Series editor Kaas, JH. Elsevier/Academic Press.
- Zavitz E, **Yu HH**, Rowe E, Rosa MGP, Price NS (2016) Rapid adaptation induces persistent biases in population codes for visual motion. *Journal of Neuroscience* 36, 4579-4590.
- Majka P, Chaplin TA, **Yu H-H**, Tolpygo A, Mitra PP, Wojcik DK, Rosa MGP (2016) Towards a comprehensive atlas of cortical connections in a primate brain: Mapping tracer injection studies of the common marmoset into a reference digital template. *Journal of Comparative Neurology* 524, 2161-2181.
- Davies AJ, Chaplin TA, Rosa MGP, **Yu H-H** (2016) Natural motion trajectory enhances the coding of speed in primate extrastriate cortex. *Scientific Reports* 6, e19739.
- Burman KJ, Bakola S, Richardson KE, **Yu H-H**, Reser DH, Rosa MGP (2015) Cortical and thalamic projections to cytoarchitectural area 6Va and 8C of the marmoset monkey: connectionally distinct subdivisions of the lateral premotor cortex. *Journal of Comparative Neurology* 523, 1222-1247.
- **Yu H-H**, Chaplin TA, Rosa MGP (2015) Representation of central and peripheral vision in the primate cerebral cortex: Insights from studies of the marmoset brain. *Neuroscience Research* 93, 47-61.
- **Yu H-H** & Rosa MGP (2014) Uniformity and diversity of response properties of neurons in the primary visual cortex: selectivity for orientation, direction of motion and stimulus size from centre to far periphery. *Visual Neuroscience* 31, 85-98.
- **Yu H-H**, Chaplin TA, Egan GW, Reser DH, Worthy KH, Rosa MGP (2013) Visually evoked responses in extrastriate area MT after lesions of striate cortex in early life. *Journal of Neuroscience* 33, 12479-12489.
- Chaplin TA, **Yu H-H**, Soares JGM, Gattass R, Rosa MGP (2013) A conserved pattern of differential expansion of cortical areas in simian primates. *Journal of Neuroscience* 33, 15120-15125.
- Chaplin\* TA, **Yu H-H\*** & Rosa MGP (2013) Representation of the visual field in the primary visual area of the marmoset monkey: magnification factors, point-image size, and proportionality to retinal ganglion cell density. *Journal of Comparative Neurology* 521, 1001-1019. \*Equal first authorship.
- Reser DH, Burman J, **Yu H-H**, Chaplin TA, Richardson KE, Worthy KH & Rosa MGP (2013) Contrasting patterns of cortical input to architectural subdivisions of the area 8 complex: a retrograde tracing study in marmoset monkeys. *Cerebral Cortex* 23, 1901-1922.
- **Yu H-H**, Chaplin TA, Davies AJ, Verma R & Rosa MGP (2012) A specialized area in limbic cortex for fast analysis of peripheral vision. *Current Biology* 22, 1351-1357.
- Burman K, Reser R, **Yu H-H** & Rosa MGP (2011) Cortical input to the frontal pole of the marmoset monkey. *Cerebral Cortex* 21, 1712-1737.
- **Yu H-H** & Rosa MGP (2010) A simple method for creating wide-field visual stimulus for electrophysiology: mapping and analyzing receptive fields using hemispheric display. *Journal of Vision* 10, 15.
- **Yu H-H**, Verma R, Yang Y, Tibballs HA, Lui LL, Reser DH & Rosa MGP (2010) Spatial and temporal frequency in striate cortex: functional uniformity and specializations related to receptive field eccentricity. *European Journal of Neuroscience* 31, 1043-1062.
- Rosa MGP, Palmer SM, Gamberini M, Burman KJ, **Yu H-H**, Reser DH, Bourne J, Tweedale R & Galletti C (2009) Connections of the dorsomedial visual area: pathways for early integration of dorsal and ventral streams in extrastriate cortex. *Journal of Neuroscience* 29, 4548-4563.
- **Yu H-H** & de Sa VR (2004) Nonlinear receptive field mapping with synthesized naturalistic stimuli. *Neurocomputing* 58-60, 909-913.

## CONFERENCE POSTERS AND PRESENTATIONS

- Sadakane O, Rowley D, Watakabe A, Tani T, Abe H, Ichinohe N, Mizukami H, **Yu H-H**, Rosa MGP, Yamamori T (2018) Calcium imaging during free viewing of natural images from the primary visual cortex of marmosets. Japan Neuroscience Society Annual Meeting (Kobe, Japan).
- Rowley D, Haghgooie S, Zavitz E, Price NS, Rosa MGP, **Yu H-H** (2015) Feature selectivity of neurons in the dorsomedial (DM) area of the marmoset visual cortex. *Systems & Computational Neuroscience Down Under* (SCiNDU2015, Brisbane, Australia).
- Davies AJ, Rosa MGP, **Yu H-H** (2015) Context-dependent robust coding of stimulus speed in primate extrastriate cortex. *Annual Meeting of the Society for Neuroscience* (SfN2015, Chicago, USA).
- Hadjimitrakis K, Alanazi O, Chaplin TA, Chan J, **Yu H-H**, Bakola S, Rosa MGP (2015) Topographic organization of “third tier” dorsomedial visual cortex in the macaque monkey. *Annual Meeting of the Society for Neuroscience* (SfN2015, Chicago, USA).

- Majka P, Chaplin TA, **Yu H-H**, Tolpygo A, Mitra PP, Wójcik DK, Rosa MGP (2015) Workflow for mapping tracer injection studies of the common marmoset into a reference template. *Annual Meeting of the Society for Neuroscience* (SfN2015, Chicago, USA).
- Davies AJ, Chaplin TA, Rosa MGP, **Yu H-H** (2015) Context-dependent robust coding of stimulus speed in primate extrastriate cortex. *11th Asia-Pacific Conference on Vision* (APCV2015, Singapore).
- **Yu H-H**, Chaplin TA, Reser DH, Worthy KH, Rosa MGP (2015) The organization of the Middle Temporal area (MT) and the lateral geniculate nucleus (LGN) in monkeys with early-life lesions of the primary visual cortex. *11th Asia-Pacific Conference on Vision* (APCV2015, Singapore).
- Zavitz E, Haghgooei S, **Yu H-H**, Davies AJ, Rosa MGP, Price NSC (2014) Population coding of motion direction in marmoset area MT is rapid and sustained. *Annual Meeting of the Society for Neuroscience* (SfN2014, Washington D.C., USA).
- Kwan WC, Mundinano IC, **Yu H-H**, Warner CE, Bourne JA (2014) Reorganization of the primary visual cortex and the pulvinar following early life lesion to extrastriate area MT. *Annual Meeting of the Society for Neuroscience* (SfN2014, Washington D.C., USA).
- Majka P, Chaplin TA, **Yu H-H**, Pinskiy V, Mitra P, Rosa MGP, Wójcik DK (2014) Automated workflow for mapping tracer injection studies of the common marmoset into a reference template. *Neuroinformatics 2014* (NI2014, Leiden, Netherlands).
- **Yu H-H**, Rosa MGP, Haghgooei S, Davies AJ, Zavitz E, Price, NSC (2014) Testing different models of the organization of the dorsal extrastriate cortex using multi-electrode arrays. *Australasian Neuroscience Society 34th Annual Meeting* (ANS2014, Adelaide).
- **Yu H-H**, Chaplin TA, Egan GW, Reser DH, Worthy KH, Rosa MGP (2013). The organization of the Middle Temporal area (MT) and the lateral geniculate nucleus (LGN) in monkeys with early-life lesions of the primary visual cortex. *Annual Meeting of the Society for Neuroscience* (SfN2013, San Diego, USA).
- **Yu H-H**, Chaplin TA, Egan GE, Worthy KH & Rosa MGP (2013) Organization of area MT in marmosets with early V1 lesions. *Australian Neuroscience Society 33rd Annual Meeting* (ANS2013, Melbourne).
- Haghgooei S, **Yu H-H**, Price NSC & Rosa MGP (2013) Simultaneous mapping of receptive fields and response properties of large neuronal populations in extrastriate cortex. *Australian Neuroscience Society 33rd Annual Meeting* (ANS2013, Melbourne).
- Davies AJ, **Yu H-H** & Rosa MGP (2013) Contextual effects in speed tuning of neurones in the middle temporal area (MT). *Australian Neuroscience Society 33rd Annual Meeting* (ANS2013, Melbourne).
- Chaplin TA, **Yu H-H** & Rosa MGP (2013) Scaling up the primate cerebral cortex: patterns and key areas of expansion across species. *Australian Neuroscience Society 33rd Annual Meeting* (ANS2013, Melbourne).
- **Yu H-H**, Chaplin TA, Davies AJ, Verma R & Rosa MGP (2012) A specialized area in primate limbic cortex for rapid processing of far peripheral vision. *Annual Meeting of the Society for Neuroscience* (SfN2012, New Orleans, USA).
- **Yu H-H**, Chaplin TA, Egan GW & Rosa MGP (2012) Visual responses of neurons in area MT following lesions of primary visual cortex in early life. *Vision Down Under 2012* (VDU2012, Brisbane).
- **Yu H-H**, Chaplin TA, Verma R & Rosa MGP (2012) Response properties of neurons in area prostriata of the marmoset monkey. *Australian Neuroscience Society 32nd Annual Meeting* (ANS2012, Brisbane).
- **Yu H-H**, Verma R & Rosa MGP (2011) Visual responses in area prostriata: a proisocortical field located near the rostral tip of the calcarine sulcus. *Australian Neuroscience Society 31st Annual Meeting* (ANS2011, Auckland, NZ).
- **Yu H-H**, Tibballs HA, Lui LL, Reser DH & Rosa MGP (2009) Stimulus speed selectivity at the peripheral representation of visual area V1. *Australian Neuroscience Society 29th Annual Meeting* (ANS2009, Canberra).
- **Yu H-H**, de Sa VR & Sereno MI (2008) The organization of classical and non-classical receptive fields of V1 neurons of the California ground squirrel (*Spermophilus beecheyi*). *Asia-Pacific Conference on Vision* (APCV2008, Brisbane).
- **Yu H-H**, de Sa VR & Sereno MI (2008) The organization of classical and non-classical receptive fields of V1 neurons of the California ground squirrel (*Spermophilus beecheyi*). *Computation and System Neuroscience* (COSYNE2008, Salt Lake City, Utah, USA).
- **Yu H-H**, de Sa VR & Sereno MI (2005) The organization of classical and non-classic receptive fields in V1 of the California ground squirrel. *Annual Meeting of the Society for Neuroscience* (SfN 2005, Washington DC, USA).
- **Yu H-H** & de Sa VR (2003) Nonlinear receptive field mapping with synthesized naturalistic stimuli. *Annual Computational Neuroscience Meeting* (CNS2003, Alicante, Spain).
- **Yu H-H** & Sereno MI (2001) Intermediate-level shape processing – fMRI and modeling. *The 8th Annual Joint Symposium on Neural Computation* (AJSNC2001, San Diego, USA).

## TRAINING/WORKSHOPS

- 2015 **Queensland Brain Institute (Brisbane, Australia)**  
Conference Tutorial: "Vision, efficient coding and salience". Organiser: Professor Li Zhaoping
- 2013 **Florey Institute of Neuroscience and Mental Health (Melbourne, Australia)**  
Workshop: "Modern views on the organization of the forebrain"  
Organizer: Professor Charles Watson
- 2010 **Cold Spring Harbor Laboratory (Cold Spring Harbor, NY, USA)**  
Workshop: "Circuit & Molecular Architecture of the Vertebrate Brain"  
Organizers: Professor Partha Mitra and Professor Kathleen Rockland
- 2010 **Victorian Life Sciences Computation Initiative (VLSCI, Melbourne, Australia)**  
Workshop: "High performance computing: Think big! Enabling scientific computing"

## STUDENT SUPERVISION

- 2016- **Department of Physiology, Monash University**  
Primary supervisor of Declan Rowley's PhD research
- 2015 **Department of Physiology, Monash University**  
Primary supervisor of Declan Rowley's Honours thesis "*Feature selectivity of neurons in the dorsomedial (DM) area of the marmoset visual cortex*"
- 2014 **Department of Physiology, Monash University**  
Primary supervisor of Tristan Dry's Honours thesis "*Selectivity of neurons in the dorsomedial (DM) visual area of the marmoset monkey to direction of motion*"
- 2012- **Department of Physiology, Monash University**  
Co-supervisor of Amanda Davies' Ph.D. thesis
- 2011 **Department of Physiology, Monash University**  
Co-supervisor of Sherry Zhao' PHY3990 thesis "*Visual responses of LGN neurons in marmosets with early V1 lesions*"
- 2011 **Department of Physiology, Monash University**  
Primary supervisor of Amanda Davies' honours thesis "*Understanding the representation of speed in marmoset's visual cortex*"
- 2010 **Department of Physiology, Monash University**  
Co-supervisor of Thomas Wijaksano's honours thesis "*Connection between LGN and area MT in marmoset with early V1 lesions*"
- 2009 **Department of Physiology, Monash University**  
Primary supervisor of Tristan Chaplin's SCI2740 research thesis "*Reconstructing the primary visual cortex of the marmoset (Callithrix jacchus)*"
- 2003 **Department of Cognitive Science, UC San Diego**  
Co-supervisor of Eugene Kim's honours thesis "*The role of noise in spike-time dependent plasticity (STDP)*"

## TEACHING

- 2016- **Department of Psychology, Monash University**  
Lecturer, PSY3310 *Introduction to Computational Neuroscience*  
Lecture on Human Vision as Computation in the Fourier Space
- 2015- **Department of Physiology, Monash University**  
Lecturer, PHY3012 *Integrative Neuroscience - Neuron to Brain*  
Lecture on Plasticity in the Visual System in Development
- 2014, 2015 **Department of Physiology, Monash University**  
Lecturer, PHY3111 *Sensation and Movement*  
Lecture on Colour Vision
- 2012- **Department of Radiography, Monash University**

Hsin-Hao Yu, Ph.D.

- Lecturer, *RAD2092 Radiologic biology 4*  
Lectures on 1. Cerebral Cortex, 2. Eye and the Retina, and 3. The Visual Pathways
- 2008 **Department of Cognitive Science, UC San Diego**  
Lecturer, *COGS 25 Introduction to Web Programming*
- 2008 **Department of Cognitive Science, UC San Diego**  
Guest Lecturer, COGS91 SCANS Presents... (guest lecture on the visual cortex)
- 2007 **Department of Cognitive Science, UC San Diego**  
Guest Lecturer, *COG101A Sensation and perception (guest lecture on colour vision)*
- 2002 **Department of Cognitive Science, UC San Diego**  
Teaching Assistant, *COG14 Design and analysis of experiments*
- 2000, 2001 **Department of Cognitive Science, UC San Diego**  
Teaching Assistant, *COG108B Artificial Intelligence Modeling*
- 1999 **Department of Cognitive Science, UC San Diego**  
Teaching Assistant, *COG108A Theory of Computation and Formal Systems*

## ACADEMIC SERVICES

- 2017 Co-organiser (with Dr. Elizabeth Zavits) of the “*A New World in Primate Vision Research: The Marmoset as a Model Animal*” symposium for the Asian Pacific Conference on Vision.
- 2015 Member of the organising committee for the Introduction to Computational Neuroscience class in Psychology, Monash University (PSY3310).
- 2015 Delegate of ARC Centre of Excellence for Integrative Brain Function (CIBF) to the *Modeling and Computational Neuroscience Scientific Workshop* (Prato, Italy).
- 2014 Member of the local organizing committee for *Neuroinformatics 2015: INCF Congress*.
- 2013 Delegate of the Victorian Node of the International Neuroinformatics Coordination Facility (INCF) to the Node Workshop of INCF (Stockholm, Sweden)
- 2009- Grant reviewer for Australian Research Council (ARC) and National Health and Medical Research Council (NHMRC)
- 2008- Honours thesis examiner for the Department of Physiology, Monash University
- 2003 Funding editor of *Cognitive Science Online* (<http://cogsci-online.ucsd.edu>)
- 2002 Organizer of “CogSci WA” (Interdisciplinary seminar for Cognitive Science, UC San Diego)

## MEDIA

- 2012- Contributing writer for public science websites: PanSci ([www.pansci.asia](http://www.pansci.asia)), CASE (Center for Advancement of Science Education, National Taiwan University), and The News Lens ([www.thenewslens.com](http://www.thenewslens.com)).
- 2012 Interviewed by M3 Magazine (<http://www.med.monash.edu.au/news/m3/>) for the article “Early warning system: The eyes have it” about my research.

## LANGUAGES

Mandarin, English