

### Appointments

Assistant Professor, Yale-NUS College	2015-Present
Principal Investigator, IMCB/A-STAR, Singapore	2015-Present
Internal Joint Appointment, Dept. of Physiology, NUS	2016-Present

### Education

Ph.D. in Life Sciences (Neuroscience)	2005
National Centre for Biological Science, TIFR, Bangalore, India. (awarded by MAHE)	
Master of Sciences in Plant Sciences	1998
University of Hyderabad, Hyderabad, India.	
Bachelor of Sciences	1996
Osmania University, Hyderabad, India.	

### Relevant publications (#:Co-first, \*:Corresponding, H-index: 12)

1. Stamps M, Go S and **AS Mathuru\*** Computational geometric tools for quantitative comparison of locomotory behavior, **Scientific Reports** 2019, in press.
2. Sara Haghani#, Maharshee Karia#, Ruey-Kuang Cheng and **AS Mathuru\*** An automated assay system to study novel tank induced anxiety. **Frontiers of Behavioral Neuroscience**, 2019 DOI: <https://doi.org/10.3389/fnbeh.2019.00180>
3. Xu, C., Govindarajan, L.N., Zhang, Y. James Stewart, Zoë Bichler, Suresh Jesuthasan, Adam Claridge-Chang, **AS Mathuru**, Wenlong Tang, Peixin Zhu, Li Cheng **International Journal of Computer Vision**, 2018, 126: 897. DOI:<https://doi.org/10.1007/s11263-018-1069-3>
4. CH Lim and **AS Mathuru** Modeling Alzheimer's and other age related human diseases in embryonic systems. **Journal Developmental Biology**, 2018, 6(1), 1 DOI:[10.3390/jdb6010001](https://doi.org/10.3390/jdb6010001)
5. **AS Mathuru** A little rein on addiction. **Seminars in Cell and Developmental Biology**, 2017. DOI: <https://doi.org/10.1016/j.semcdb.2017.09.030>
6. **AS Mathuru** Conspecific injury raises an alarm in medaka **Scientific Reports** 2016. DOI: [http://dx.doi.org/10.1038/srep36615](https://dx.doi.org/10.1038/srep36615)
7. S Krishnan#, **AS Mathuru#** et al. The right dorsal habenula limits attraction to specific odors. **Current Biology** 2014, DOI: <http://dx.doi.org/10.1016/j.cub.2014.03.073>
8. SJ Tan, M Kee, **AS Mathuru** et al. A microfluidic device to sort cells based on dynamic response to a stimulus, **PLOS One**, 2013, DOI: <http://dx.doi.org/10.1371/journal.pone.0078261>
9. A Schirmer, S Jesuthasan and **AS Mathuru\*** Tactile stimuli reduce fear in fish, **Frontiers of Behavioral Neuroscience**, 2013, DOI: <http://dx.doi.org/10.3389/fnbeh.2013.00167>
10. **AS Mathuru** and S Jesuthasan The medial habenula as a regulator of anxiety in adult zebrafish. **Front. Neural Circuits** 2013, DOI: <http://dx.doi.org/10.3389/fncir.2013.00099>
11. **AS Mathuru** et. al., Chondroitin Fragments Are Odorants that trigger fear behavior in fish. **Current Biology**, 2012 DOI: <http://dx.doi.org/10.1016/j.cub.2012.01.061>
12. A Lee, **AS Mathuru**, et. al., The habenula prevents helpless behavior in larval zebrafish. **Current Biology**, 2010 DOI: <http://dx.doi.org/10.1016/j.cub.2010.11.025>
13. **AS Mathuru** and S Jesuthasan, Alarm Response in Zebrafish: Innate Fear in a Vertebrate Genetic Model. **Journal of Neurogenetics**, 2008 DOI: [10.1080/01677060802298475](https://doi.org/10.1080/01677060802298475)
14. M Hendricks, **AS Mathuru** et al. Disruption of Esrom and Ryk identifies the roof plate boundary as an intermediate target for commissure formation. **Molecular and Cellular Neuroscience**, 2008, DOI: <http://dx.doi.org/10.1016/j.mcn.2007.10.002>
15. **AS Mathuru** and US Bhalla, A propagating ERKII switch forms zones of elevated dendritic activation correlated with plasticity. **HFSP J**, 2006, DOI: <http://dx.doi.org/10.2976/1.2721383>
16. **AS Mathuru** and US Bhalla, Synaptic plasticity – in vitro and in silico : Insights into an intracellular signaling maze. **Physiology**, 2006 DOI: [10.1152/physiol.00009.2006](https://doi.org/10.1152/physiol.00009.2006)
17. **AS Mathuru** and US Bhalla, A role for ERKII in synaptic pattern selectivity on the time-scale of minutes. **E. J. Neurosci.**, 2004 DOI: <http://dx.doi.org/10.1111/j.1460-9568.2004.03725.x>
18. SJ Vayttaden, **AS Mathuru** and US Bhalla, A spectrum of models of signaling pathways. **Chembiochem**, 2004, DOI: [10.1002/cbic.200400127](https://doi.org/10.1002/cbic.200400127)

### Relevant preprints

19. Matthew T Stamps, Soo H Go and **AS Mathuru** Computational geometric tools for modeling inherent variability in animal behavior **BioRxiv** 2019 doi: <https://doi.org/10.1101/531392>
20. **AS Mathuru#\*** et al. Familiarity with conspecifics aids in recovery from fear in zebrafish **BioRxiv** 2017; doi: <http://dx.doi.org/10.1101/098509>.

### Research focus

I am interested in understanding the neural, genetic and molecular mechanisms underlying animal behavior. I use a small, translucent vertebrate (zebrafish) that allows one to perform precise genetic manipulations and optical imaging of neural activity at a high resolution. In general, the focus is on bringing ethologically relevant behaviors motivated by

appetitive or aversive cues that include social behaviors, predator avoidance, olfactory signalling, and more recently conditions leading to development of substance dependence.

#### Research highlighted

New discovery of alarm response in medaka fish furthers analysis of fear [ScienceDaily](#), [PhysOrg](#), [Eurekalert](#), [Asian Scientist](#), [A\\*STAR research highlights](#) and [Yale-NUS highlights](#).

Fish need hugs too. [Duke Research Blog](#), [PhysOrg](#)

“‘Scary stuff’ prompts fish to flee from danger” highlighted in [Nature News](#), [Science STKE](#), [ScienceNow](#), [New York Times](#), [Reuters news](#), [Scientific American](#), [Smithsonian Magazine](#), [Curr. Biol. dispatch](#), [The Naked Scientists](#) and other international news/blogs.

#### Employment

<b>Sr. Research Fellow</b> , IMCB/A-STAR, Singapore	2012-2015
<b>Sr. Research Fellow</b> , Duke-NUS/A-STAR, Singapore	2009-2012
<b>Research Fellow</b> , Temasek Lifesciences Labs, Singapore	2006-2009

#### Grants and ongoing research support

Yale-NUS College Large Grant (S\$ 115,000)	2016-2019
Yale-NUS College Start Up Grant (S\$ 180,000)	2015-2019
Lead Investigator, 1 <sup>st</sup> Career Dev. Grant (JCO, Singapore; S\$ 749,889.00)	2012-2015

#### Awards

NIG-JOINT A award, National Institute of Genetics, Mishima, Japan (Yen 195,000)	2019
Early Career Researcher Project Grant Award (IMCB/A-STAR, Singapore)	2014
Sir David Lane Award, A*STAR Scientific Conference, Singapore,	2011

#### Selected speaking invitations in international conferences/workshops

- International Behavioural Neuroscience Society, Annual Meeting, Cairns, Australia, Jun 2019
- LKCMedicine Neuroscience Seminar Series, Singapore, Oct 2018
- 10th European Zebrafish Meeting, Budapest, Hungary, Jul 2017
- 2nd Malaysia Zebrafish Disease Model Workshop 2017
- 3rd IBRO-APRC Advanced School of Neuroscience Symposium, Nov 2016.
- 7th Asia Oceania Zebrafish Meeting , Singapore, Oct 2016
- The 9th Zebrafish Disease Models Conference (ZDM9), Singapore Oct 2016
- International Chemical Ecology Conference, Melbourne, Australia, Aug 2013
- 10<sup>th</sup> International NeuroEthology Congress, Univ. of Maryland. USA, Aug 2012.
- Neuroscience and Behavioral Disorders retreat, Duke-NUS, Singapore, Oct 2011.
- Form & function in the olfactory system. Janelia Farm, Washington DC, USA. May 2010.

#### Honors undergraduate and graduate student thesis supervision

- 2019-current - Ms. Tanisha Goel (Ph.D. Dept. of Physiology, NUS).
- 2018-2019 - Wang Qing (Yale-NUS Capstone Project)
- 2017-Current - Caroline Kibat (Ph.D. Dept. of Physiology, NUS).
- 2016-2017– Tsoi Sau Yee (Yale-NUS Capstone Project)

#### Co-supervisor

- 2014-2015 – Tabitha Ng (NUS Biology Honors thesis)
- 2012-2013 – Siddharth Janarthana (NTU SBS Final Year Project)
- 2010-2011 – YiJun Wang (NUS Biology Honors thesis)
- 2011-2012 – Xin Yu (NUS Psychology Program, Honors thesis)
- 2009-2010 – Jolene Huang (NUS Psychology Program, Honors thesis)
- 2009-2010 – Yean Chert Lee (NUS Biology Honors thesis)
- 2010-2011 – Chan Yu Jun Grace (NUS Biology Honors thesis)
- 2009-2010 – Ng Yuqin Kimberley (NUS Psychology Program, Honors thesis)
- 2008-2010 – Alethiea Lee (NUS Psychology Program, Honors thesis)

#### Undergraduate summer research/ internships

- 2018 – 1. Sara Haghani, 2. Lavvona Mark, 3. Malika Mammadoma, 4. Toby Limanto (Yale-NUS College)
- 2017 – 1. Ignacius Tay (Yale-NUS College; A\*STAR Research Internship); 2. Sara Haghani (Yale-NUS College), 3. Vishnu Sajenth (Imperial College, London, UK), 4. Maharshee Karia (McGill University), 6. Rui Zhe Goh and 7. Haroun Chahed (Yale-NUS College)
- 2016 – 1. Loh Jin Tyia and 2. Wang Qing (Yale-NUS College)