



Shailesh Appukuttan

Postdoctoral Researcher (Jan 2017 – Present)

Mobile: +33 (0)753121495 | **Email:** shailesh.appukuttan@cnsr.fr

Address: NeuroInformatics Group, NeuroPSI, Université Paris-Saclay, CNRS, Institut des Neurosciences Paris-Saclay, Saclay, 91400, France

I am interested in the application of computational techniques to challenges in inter-disciplinary domains, and also in implementing automation in software workflows. Currently, I am employed in the Human Brain Project (HBP). The general theme of my postdoctoral work has been to focus on data integrity, reproducibility, and interoperability for neuroscience.

Date of Birth:
26th April, 1987

Nationality:
Indian

Sex:
Male

Languages:
English: *Fluent*
Hindi: *Fluent*
Malayalam: *Average*
French: *A2 Level*
Portuguese: *Beginner*

Website:
<http://www.shailesh-appukuttan.com/>

ORCID:
<https://orcid.org/0000-0002-0148-8023>

Education

- 2015 **Integrated Masters + Ph.D. – Biomedical**
Indian Institute of Technology, Mumbai, India
Obtained: CPI 9.52/10.00
GATE 2009 CS Rank: 239, Percentile: 99.43
- 2008 **Bachelor of Engineering – Computer Science**
SIES Graduate School of Technology, Navi Mumbai, India
Obtained: 69.15%, 58th Rank in University
- 2004 **Intermediate /+2 – Computer Science**
Atomic Energy Junior College, Mumbai, India
Obtained: 90.33%
- 2002 **Matriculation**
Atomic Energy Central School -2, Mumbai, India
Obtained: 89.90%

Work Experience

- 2017 – till date **UNIC, CNRS – Postdoctoral Researcher**
- Design and development of model validation framework
 - Developing multi-simulator model representation format
- 2015-2016 **IIT Bombay – Research Associate**
- Continued on my doctoral research project
 - Parallely initiating a project on Parkinson's Disease
- 2016 **NMIMS SD-School Of Science – Visiting Faculty**
- Invited to teach an undergraduate course on Linux & R
 - 15 hours of lectures + 60 hours of practicals
- 2009-2011 **TechShiksha – Co-founder and Technical Head**
- Educational initiative to instill scientific thinking in children
 - Worked with government, private schools and NGOs
- 2008-2009 **TechMahindra – Technical Associate**
- Worked on Siebel platform on a project for British Telecom
 - Topped both 'Induction training' and 'Siebel training'

Publications

- ✓ **Appukuttan, S.**, Bologna, L., Migliore, M., Schürmann, F., & Davison, A. (2021). EBRAINS Live *Papers-Interactive resource sheets for computational studies in neuroscience*. OSF Preprints: <https://doi.org/10.31219/osf.io/4uvdy>
- ✓ **Appukuttan, S.**, Brain, K. L., & Manchanda, R. (2021). *Effect of Variations in Gap Junctional Coupling on the Frequency of Oscillatory Action Potentials in a Smooth Muscle Syncytium*. *Frontiers in Physiology*, 12.
- ✓ Sáray, S., Rössert, C. A., **Appukuttan, S.**, Migliore, R., Vitale, P., Lupascu, C. A., ... & Káli, S. (2021). *HippoUnit: A software tool for the automated testing and systematic comparison of detailed models of hippocampal neurons based on electrophysiological data*. *PLoS computational biology*, 17(1), e1008114.
- ✓ **Appukuttan, S.**, Mandge, D., & Manchanda, R. (2020, March). *Implementation of Syncytial Models in NEURON Simulator for Improved Efficiency*. In 2020 28th Euromicro International Conference on Parallel, Distributed and Network-Based Processing (PDP) (pp. 266-273). IEEE.
- ✓ Manchanda, R., **Appukuttan, S.**, & Padmakumar, M. (2019). *Electrophysiology of Syncytial Smooth Muscle*. *Journal of experimental neuroscience*, 13, 1179069518821917.
- ✓ **Appukuttan, S.**, Padmakumar, M., Young, J. S., Brain, K. L., & Manchanda, R. (2018). *Investigation of the syncytial nature of detrusor smooth muscle as a determinant of action potential shape*. *Frontiers in physiology*, 9, 1300.
- ✓ **Appukuttan, S.**, Brain, K. L., & Manchanda, R. (2017). *Modeling extracellular fields for a three-dimensional network of cells using neuron*. *Journal of Neuroscience Methods*, 290, 27-38.
- ✓ **Appukuttan, S.**, Brain, K., & Manchanda, R. (2017). *Investigation of action potential propagation in a syncytium*. *Biomed. Res. J*, 4(1), 102-115.
- ✓ **Appukuttan, S.**, Padmakumar, M., Brain, K. L., & Manchanda, R. (2017). *A Method for the Analysis of AP Foot Convexity: Insights into Smooth Muscle Biophysics*. *Frontiers in bioengineering and biotechnology*, 5.
- ✓ **Appukuttan, S.**, & Manchanda, R. (2016). *Independence of AP propagation velocity to transjunctional voltage dependence of gap junctional coupling*. *The Siberian Scientific Medical Journal*, 36(1), 80-85.
- ✓ **Appukuttan, S.**, Sathe, R., & Manchanda, R. (2016). *Influence of Gap Junction Subtypes on Passive and Active Electrical Properties of Syncytial Tissues*. Accepted at ICSMB 2016, India. IEEE Xplore Digital Library.
- ✓ **Appukuttan, S.**, Brain, K. L., & Manchanda, R. (2015). *A computational model of urinary bladder smooth muscle syncytium*. *Journal of Computational Neuroscience*, 38(1), 167-187.

(continued...)

- ✓ **Appukuttan, S.,** Brain, K., & Manchanda, R. (2015). *Syncytial basis for diversity in spike shapes and their propagation in detrusor smooth muscle*. *Procedia Computer Science*, 51, 785-794.
- ✓ **Appukuttan, S.,** Sathe, R., & Manchanda, R. (2015). *Modular approach to modeling homotypic and heterotypic gap junctions*. In *Computational Advances in Bio and Medical Sciences (ICCABS), 2015 IEEE 5th International Conference on* (pp. 1-6). IEEE.

Memberships

- | | |
|------------------|--|
| 2021 - 2023 | Serving on the Board of Directors of OCNS
Member of <i>Organization for Computational Neurosciences</i> since 2013 |
| 2020 – till date | Co-chair of INCF/OCNS Software WG
One of the founding members of the working group |
| 2019 – till date | Member of SANKET consortium
Multi-institution consortium to further brain research |

Teaching Asst.

- | | |
|-----------|---|
| 2013-2015 | BB803 – Advanced Cellular Electrophysiology
Instructor: Prof. Rohit Manchanda, IIT Bombay |
| 2011-2013 | BM636 – Bioelectricity
Instructor: Prof. Rohit Manchanda, IIT Bombay |
| 2011-2013 | BM651 – Biopotentials
Instructor: Prof. Rohit Manchanda, IIT Bombay |
| 2010-2013 | BM627 – Virtual Instrumentation
Instructor: Prof. Soumyo Mukherji, IIT Bombay |

Other Experience

- ✓ Conducted a tutorial on 'Python for beginners' at CNS 2021 (June 2021)
- *Organized by INCF/OCNS Software Working Group*
- ✓ Organized EBRAINS Infrastructure Training on Model Validation (May 2021)
- *4-day workshop on developing model-agnostic validation tests*
- ✓ Member of Program Committee for HBP CodeJam #11 & #12 (2020 - 2021)
- *HBP CodeJams are hands-on events where experts work together on projects*
- ✓ Served as a committee member for PDP conferences (2018 - 2020)
- *Reviewed submissions for the 'HPC for Neuroscience' track*
- ✓ Member of HBP Data Governance Working Group (2018 - 2019)
- *Represented sub-project #6 (SP6) in forming data governance policies*
- ✓ Conducted NEURON workshop at GCOE, Chandrapur, India (Feb. 2014)
- *Invited by college to organize a 3-day workshop on computational modeling*