Surya Rajan Selvam

786 Raymond Kent Court, Apt#2, Louisville, Kentucky 40217 | ✆ +1 (716) 215 8393 | ✉ s0selv03@louisville.edu |

Education

2015-2017 **Master of Science in Chemical and Biological Engineering**, University at Buffalo, The State University of New York, New York, USA; CGPA (scale of 4) = 3.3

2010-2014 **Bachelor of Technology in Chemical Engineering**, National Institute of Technology (NIT) Calicut, Kerala, India; CGPA (Scale of 10) = 6.6

Projects

Feb 2018 – now **Post-Master's Research**, Human Cognitive Neurophysiology Laboratory, University of Louisville School of Medicine

Effect of Sub Thalamic Nucleus Deep Brain Stimulation on Human Cognition.

- Assist in the experimental design.
- Writing the experimental code using MATLAB based MonkeyLogic 2 software.
- Run participants for behavioral studies

Principal Investigator: Dr. Joseph Neimat, Professor and Chairman, Department of Neurological Surgery, University of Louisville School of Medicine

Dec 2017 – now **Post-Master's Research**, Cognitive Neuroscience of Memory Laboratory, University of Louisville

Determine the role of Sleep and Stress on Human Memory using functional MRI.

- Assist in the experimental design.
- Run participants for behavioral studies.
- Setup of MATLAB based multi voxel pattern analysis toolbox and NeuroPipe pipeline for fMRI data analysis.
- Assist Dr. Nicholas Hindy with the Computer Programming for Psychology course.

Principal Investigator: Dr. Nicholas Hindy, Assistant Professor, Department of Psychological and Brain Sciences, University of Louisville

Jan 2016 - Aug 2017 **Master's Project,** Bioengineering Laboratory, University at Buffalo

Isolation of Neural Crest Stem Cells from Human Epidermis and Differentiation into various lineages.

- Plan and execute experiments as part of the research group which identified a new source of Neural Crest Stem Cells in the human skin.
- Isolate skin cells from human cadaver and expand the Neural Crest Stem Cell population.
- Differentiate the Neural Crest Stem Cells into neurons, Schwann cells, smooth muscle cells and melanocytes.

Principal Investigator: Dr. Stelios Andreadis, Professor and Department Chair, Department of Chemical and Biological Engineering, University at Buffalo

Fall 2015 **Tissue Engineering Course Project**, University at Buffalo

Directed Neuronal Regeneration

- Develop a project proposal for a tissue engineering based technique to achieve Directed Neuronal Regeneration.

Instructor: Dr. Stelios Andreadis, Professor and Department Chair, Department of Chemical and Biological Engineering, University at Buffalo

Relevant Coursework

→ Biological Basis of Behavior
→ Bioengineering Principles
→ Computer Aided Design
→ Neuroscience
→ Statistics
→ Organic Chemistry
→ Human Biology for Biomedical Engineers
→ Computer Programming
→ Computation and Mathematics

Poster Presentation

2016 **19th Annual Chemical and Biological Engineering Graduate Research Symposium**, University at Buffalo, September 2016
Chemical Reprogramming of Adult Human Keratinocytes towards Neural Crest fate

Software Proficiency

→ MATLAB – Advanced
→ MS Word, PowerPoint, Excel, OneNote – Advanced
→ Google Docs – Advanced
→ Simulink – Intermediate
→ MonkeyLogic 2 – Intermediate
→ COMSOL – Intermediate
→ ProEngineer – Intermediate
→ AxioVision SE64 – Intermediate
→ Benchling – Intermediate
→ EndNote X7 – Intermediate
→ PsychToolbox 3– Beginner
→ R/Bioconductor – Beginner
→ Neuron 7.4 – Beginner
→ NeuroPipe – Beginner
→ NI DaqExpress – Beginner
→ NI LabVIew – Beginner
→ C ++ – Beginner
→ ANSYS Fluent – Beginner

Molecular Biology Skills

→ *in vitro* cell culture
→ Immunocytochemistry
→ Immunohistochemistry
→ Molecular Cloning
→ Virus Production
→ L-DOPA Assay
→ Multidimensional Microscopy
→ PCR and Quantitative PCR
→ RNA isolation
→ Reverse Transcription
→ Gel Electrophoresis

Tests Taken

2014 GRE: 332 on 340; Verbal Reasoning 162 (91st percentile); Quantitative Reasoning 170 (97th percentile); Analytical Writing 3.5 (42nd percentile)
2014 Graduate Aptitude Test in Engineering (GATE) for Chemical Engineering: National rank of 1521 (90th percentile)
2010 All India Engineering Entrance Examination: National rank of 17150 (98th percentile)
2009 12th Indian National Science Olympiad Level 1: National rank of 132 and a Cochin city rank of 2.

Positions of Responsibility

2018 – now Research Assistant, Human Cognitive Neurophysiology Laboratory, Department of Neurological Surgery, University of Louisville School of Medicine
2017 – now Research Assistant, Cognitive Neuroscience of Memory Laboratory, Department of Psychological and Brain Sciences, University of Louisville
2017 Student Assistant, Engineering Computations (200 level course), School of Engineering and Sciences University at Buffalo
2016-2017 President, Graduate Indian Student Association, University at Buffalo

2013-2014 Secretary, Chemical Engineering Association, NIT Calicut

2014 Coordinator, Programme Committee, Ragam '14, Inter-Collegiate Cultural Festival, NIT Calicut

2013-2014 Coordinator, Students Guidance Cell, NIT Calicut

Extracurricular Interests

→ Badminton, Basketball
→ Chess, Sudoku
→ Piano
→ Photography
→ Event management
→ Politics

Language Fluency

→ Tamil – Native
→ English - Native
→ Malayalam – Limited Working
→ Hindi – Limited Working