# SRUTI MALLIK

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## SUMMARY

Current Ph.D. candidate in Electrical Engineering with research experience in computational neuroscience, machine learning and control theory. Excited to pursue a career with research and development opportunities in Machine Learning and Data Analytics.

## EDUCATION

**Washington University in St. Louis, Missouri, USA**

Ph. D. in Electrical & Systems Engineering (GPA: 3.93) — Aug 2016 – May 2021 (expected)

M.S. in Electrical & Systems Engineering (GPA: 3.89) — Aug 2016 – Dec 2018

**Jadavpur University, West Bengal, India**

Bachelor of Electrical Engineering (GPA: 8.95) — Aug 2011 – Jun 2015

## SKILLS

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|---|---|
| **Programming Languages** | Python, MATLAB, R, C/CPP, SQL, HTML, CSS |
| **Libraries** | Scikit-learn, Pandas, NLTK, Matplotlib, Seaborn |
| **Deep Learning Frameworks** | TensorFlow, Keras |

## RESEARCH

**Graduate Research Assistant** — Aug 2016 – May 2021

- **Normative modeling of neural circuit dynamics to meet control & detection objectives**
  Conceptualized from scratch and coded a computational model that mimics olfaction. Developed model is highly predictive of complex functions in the brain.
- **Modeling neural and behavioral adaptation over multiple timescales**
  Conceptualized from scratch and coded a computational model that demonstrates neural adaptation and predicts behavioral decision making under those conditions. Ongoing parameter optimization using data from *C. elegans.*
- **Using optimal control theory as a framework for analyzing and implementing neural dynamics**
  Currently developing algorithms for solution of sensory and motor tasks and analyzing how they might be implemented in brain.

## PROJECTS

**Independent Project** *May 2020 – Aug 2020*

- **Classification of a dataset of floral images** (hosted by Kaggle)
  Classified a dataset of 16.5k+ training images comprising of 100 unique classes of floral images with an accuracy of ~93% using a custom ResNet along with pretrained DenseNet and Xception networks.

**Course Project** *Mar 2018 – May 2018*

- **Epileptic Seizure Recognition**
  Developed a Kernel-Based Soft Margin SVM to classify short duration EEG traces into epileptic and healthy classes with ~91% accuracy.

## PUBLICATIONS

**Refereed Journal Articles**

- **Multiple timescale normative model of sensory and behavioral adaptation** *In preparation*
  Sruti Mallik, Hamilton P. White, Dirk Albrecht, ShiNung Ching
- **Neural Circuit Dynamics for Sensory Detection** *Apr 2020*
  Sruti Mallik, Srinath Nizampatnam, Anirban Nandi, Debajit Saha, Baranidharan Raman, ShiNung Ching
  Journal of Neuroscience

**Conferences**

- **Optimal tracking as a framework for normative synthesis of sensory networks** *Sep 2020*
  Sruti Mallik, ShiNung Ching
  Bernstein Conference 2020
- **Multiple timescale normative circuit model of C. elegans sensory adaptation & behavior** *Feb 2020*
  Hamilton P. White, Sruti Mallik, ShiNung Ching, Dirk Albrecht
  Cosyne 2020

## LEADERSHIP ROLES

- Mentored one undergraduate and one graduate student in research projects *Summer 2020*
- Contributed to designing course materials and assignments as a Teaching Assistant to both Undergraduate (ESE 105, Class Size: 70) and Graduate (ESE 553 , Class Size: 25) courses. *Fall 2018, 2019, Spring 2018*

## RELEVANT COURSES

Introduction to Artificial Intelligence, Introduction to Machine Learning, Bayesian Machine Learning, Optimization, Detection and Estimation, Biological Neural Computation, Probability and Stochastic processes, Deep learning specialization (Coursera)