

# SAUMYA YASHMOHINI SAHAI

✉ sahai.17@osu.edu ☎ +1(607)379-7461

## RESEARCH INTERESTS

---

Computational social science, natural language processing, human behavior, applied machine learning

## EDUCATION

---

**Doctor of Philosophy** in Computer Science and Engineering *Jun 2019 - Present*  
The Ohio State University, *Columbus, OH, USA* *CGPA : 3.70/4.00*

**Master of Science** in Neurobiology and Behavior (minor in Data Science) *Aug 2016 - May 2019*  
Cornell University, *Ithaca, NY, USA* *CGPA : 3.94/4.00*

**Bachelor of Engineering** in Computer Science *Jul 2011 - Jul 2016*  
**Master of Science** in Physics (Dual-degree program) *CGPA : 9.20/10.00*  
Birla Institute of Technology and Science, *Pilani, India*

## TECHNICAL SKILLS

---

<b>Programming languages</b>	Python, Java, SQL, Bash, Javascript
<b>Tools and utilities</b>	PyTorch, scikit-learn, Git, R, Matlab, Amazon Mechanical Turk

## LANGUAGES

---

English:	Full professional proficiency
Hindi:	Native language

## PAPERS AND POSTERS

---

Bandyopadhyay, Bortik, Pranav Maneriker, Vedang Patel, **Saumya Yashmohini Sahai**, Ping Zhang, and Srinivasan Parthasarathy. [DrugDBEmbed: Semantic Queries on Relational Database using Supervised Column Encodings](#). *arXiv preprint arXiv:2007.02384 (2020)*.

Samuel Whitehead, Shirangi T., Lindsay T., **Sahai S.**, Ehrhardt E., Beatus T., Yapici N., Dickinson M., Stern D., Cohen I. [Uncovering the Neural Basis of Flight Control in Fruit Flies](#) *Presented at the March Meeting of American Physical Society, Los Angeles, CA. (2018)*

**Saumya Sahai**, Whitehead S., Tsyngauz E., Cohen I., Yapici N. ‘Visual Espresso: Quantitative analysis of Drosophila foraging and ingestion behaviors’ (In preparation)

Sanchez-Alcaniz JA, Silbering AF, Croset V, Zappia G, Sivasubramaniam, AK, Abuin L, **Sahai SY**, Munch D, Steck K, Auer TO, et al. [An expression atlas of variant ionotropic glutamate receptors identifies a molecular basis of carbonation sensing](#). *Nature Communications 9: 4252 (2018)*

## RESEARCH EXPERIENCE

---

**NLP Research Intern** *May 2020 - Present*  
*CEDAR Team, Inria, Palaiseau, France*  
Advisor: [Oana Balalau](#)

- Working on creating a nuanced domain independent dataset for detection of fallacies in discussions on reddit.

- Developing deep learning models on detection of fallacies with features inspired from classical theories of argumentation.

### **Research Assistant**

*Jun 2019 - Apr 2020*

*Data Mining Research Lab, The Ohio State University, Columbus, OH*

Advisor: [Srinivasan Parthasarathy](#)

- Worked on generating informative representation for raw drug description with the goal of classifying the type of interaction it has with another drug, using LSTM based-neural network architectures in PyTorch framework.
- Worked on quantifying distances between opinions using state-of-the-art models for natural language understanding.

### **Graduate Research Assistant**

*Jun 2017 - May 2019*

*Department of Neurobiology and Behavior, Cornell University, Ithaca, NY*

Advisor: [Nilay Yapici](#)

Modeled the optimal strategies underlying foraging decisions in *Drosophila melanogaster* under varying conditions of internal states and external stimuli using reinforcement learning models. Wrote end-to-end pipeline for data analysis in R and Python.

### **Rotating Graduate Student**

*Jan 2017 - May 2017*

*Department of Physics, Cornell University, Ithaca, NY*

Advisor: [Itai Cohen](#)

Investigated the neuronal basis of flight stabilization under perturbation in *Drosophila melanogaster*. Carried out experiments and analysed data under a control theory-inspired model. Also revised the 3-D *Drosophila* hull generation code for better wing reconstruction.

### **Undergraduate Researcher**

*Jan 2015 - May 2015*

*Department of Computer Science and Information Systems, BITS Pilani, India*

Advisor: [Yashvardhan Sharma](#)

Restructured the existing JAVA based text summarizer to work for non-English languages. Created corpora of reviews in non-English languages and predicted their sentiments.

### **Winter Research Scholar**

*May 2015 - Jul 2015*

*Queensland Brain Institute, The University of Queensland, Brisbane, Australia*

Advisor: [Geoffrey Goodhill](#)

Carried out the project 'Mathematical Analysis of Neural Coding in Zebrafish Tectum'. Worked towards the development of mathematical models with the help of statistical tools to explain spontaneous activity taking place in the tectum of zebrafish in the absence of any visual stimuli.

### **Summer Research Fellow**

*May 2014 - Jul 2014*

*Indian Institute of Science, Bangalore, India*

Advisor: [Vijay B. Shenoy](#)

Worked on the project 'Will a Superfluid Deplete at Zero Temperature in Presence of Interactions?'. The simulations were performed in Mathematica.

### **Summer Research Intern**

*May 2013 - Jul 2013*

*National Centre for Antarctic and Ocean Research, Goa, India*

Advisor: [Alvarinho J. Luis](#)

Carried out the project ‘A polar geospatial information extraction system using spectral characteristics of high resolution optical remote sensing data and bathymetric extraction’ using MATLAB.

## INDUSTRIAL EXPERIENCE

---

### Product Development Intern

*Jan 2016 - Jun 2016*

*Adobe Systems, Noida, India*

Mentor: [Gaurav Bhargava](#)

Developed a plug-in implementing the two-way and three-way difference and merge algorithm, for preserving formatting and design layout of the different classes of text and tables, being reimported into Adobe InDesign® files.

## HONOURS AND AWARDS

---

Global Gateway Graduate Student Research Abroad Grant, The Ohio State University	2020
University Fellowship, The Graduate School, The Ohio State University	2019 - 2020
Mong Junior Fellow, Cornell Neurotech, Cornell University	2018 - 2019
Cornell Fellowship, Department of Neurobiology and Behavior, Cornell University	2016 - 2017
Best Academic Performer for the Batch of 2011, Physics Society, BITS Pilani	2015
Summer Research Fellowship, Indian Academy of Sciences	2014
INSPIRE Fellowship, Department of Science and Technology, Govt. of India	2011-2016

## COURSEWORK

---

Speech and Language Processing	Bayesian Data Analysis
Cutting-Edge Topics in NLP	Algorithms
Social Media and Text Analytics	Time Series Analysis
Machine learning and Data Mining	Computer Architecture

## TEACHING EXPERIENCE

---

### Graduate Teaching Assistant

*Jan 2018 - May 2018*

*Introduction to Neuroscience, Cornell University, Ithaca, NY*

Duties included leading discussion sections, coordinating lecture sessions, designing preliminary and final examinations and grading assignments and exams for this introductory neuroscience course for sophomores.