

# Sammit Jain

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## RESEARCH INTERESTS

■ Image Processing • Computer Vision • Machine Learning • Numerical Analysis • Optimization

## WORK EXPERIENCE

### The MathWorks, Inc.

- Software Engineer (Semantic Search) Feb 2020 – Present
  - Developing predictive search algorithms in C++/MATLAB
  - Working on custom Named Entity Recognition(NER) and related NLP techniques
- Application Support Engineer, EDG - Bangalore, IN Jun 2019 – Feb 2020
  - Worked on predictive modelling for Simulink models, and search algorithms
- Engineering Development Group (EDG) Intern - Bangalore, IN May 2018 – Jul 2018
  - Worked on Exploratory Data Analysis to improve the Block Suggestions Feature in Simulink
  - Analyzed data from 5K industry Simulink models to identify key parameters, using multivariate statistical methods.
  - Modelled predictive algorithm using MATLAB, Python and R.

### Bioimage Analysis Group, Institut Pasteur

- Visiting Research Fellow - Paris, FR Feb 2019 – Jun 2019
  - Modelled key algorithm for segmentation of dendritic spines to study neuro-degenerative diseases.
  - Successfully created and deployed algorithm using minimal path geodesics and intrinsic median achieving 100% accuracy. (Accepted for ISBI 2020)

### The Graduate Center, City University of New York (CUNY)

- Visiting Research Fellow - New York, NY Jul 2018 – Feb 2019
  - Developed faster subspace classification algorithms using N-tuple Weightless NNs with Prof. Robert M. Haralick.
  - Successfully developed a modularized open-source framework *fitcnt()* for deploying N-tuple Neural Network

## EDUCATION

### BITS Pilani , Goa, India

- M.Sc.(hons) Mathematics Aug 2014 – May 2019
- B.E.(hons) Electrical and Electronics Engineering Aug 2014 – May 2019

## PROGRAMMING SKILLS

**Languages:** MATLAB • C/C++ • Python • HTML/CSS • R

**Libraries / Tools:** OpenCV • Scikit-learn • Simulink • STK by AGI • Adobe Photoshop

**OS:** Linux • Windows

**Version Control:** Github

## RELEVANT COURSES

Numerical Analysis • Numerical Methods for PDEs • Computer Programming • Digital Signal Processing • Operations Research • Optimization • Graphs and Networks • Discrete Math • Probability and Statistics

## PUBLICATIONS JOURNALS AND CONFERENCES

- [1] [Sammit Jain](#), Suvadip Mukherjee, Lydia Danglot and Jean-Christophe Olivo-Marin “Morphological reconstruction of detached dendritic spines via geodesic path prediction” *IEEE ISBI 2020 International Symposium on Biomedical Imaging*, Oct 2019.

- [2] Fernandes, J.R.D., Jain S. and Banerjee A. "Expression of ODC1, SPD, SPM and AZIN1 in the hypothalamus, ovary and uterus during rat estrous cycle" *General and Comparative Endocrinology*, 246. . 10.1016/j.ygcen.2017.03.005. Mar 2017.

## PROJECTS

### Image Segmentation using Machine Learning

- Morphological segmentation of bright field and dark field microscopic images Sep 2016 – Aug 2017
  - Focus: Morphological segmentation and quantitative analysis of microscopic TIFF images using clustering algorithms.
  - Result: Successfully quantified protein expressions effectively using Image processing techniques as opposed to manually examining the images, and published findings to support the hypothesis.

### Stereovision

- Obstacle Detection and Recognition using a home-made stereocamera Aug 2016 – Aug 2017
  - Focus: Construction and calibration of a stereocamera, and 3D reconstruction of scenes to help in obstacle detection.
  - Result: Successfully constructed and calibrated a 3D stereocamera capable of distinguishing obstacles of different colors and shapes.

## POSITIONS OF RESPONSIBILITY

### Computer Programming (CS F111) - Spring 2016, Spring 2017

- Professional Teaching Assistant, BITS Pilani-KK Birla Goa Campus Jan 2016 – May 2017
  - Responsibilities included being in charge of evaluation of lab sessions, and grading quizzes. Also assisted in tutorial sessions to clear student queries

### TEDxBITSGoa, BITS Goa's official University TEDx event

- Curator, TEDxBITSGoa 2017 Apr 2016 – Apr 2017
  - Organized and curated TEDxBITSGoa, India's oldest running University TEDx event, a conference which brings together ideas and people from across the country

## AWARDS & SCHOLARSHIPS

- Winner, *MathWorks Hackathon*, Bengaluru 2018  
Real-time hand-gesture recognition for MATLAB/Simulink and Windows operations
- Finalist, *AU Titan Hackathon*, Chennai 2016  
Stereovision project shortlisted as one of top entries.
- Winner, General Quiz at *Revels 2k15* 2015  
Secured the first position in the General quiz held at MIT, Manipal.
- Winner, *HT-PACE Inquizitive 2013* 2013  
Secured first position among 3000 participating teams from 500 schools in Delhi/NCR
- Fellow, *DUKE University - Talent Identification Program (TIP)* in collaboration with IIM-A 2009  
Selected among the top 64 students of the country to represent India at DUKE TIP

## REFERENCES

- **Prof. Neena Goveas**  
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- **Dr. Arnab Banerjee**  
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