

# RISHABH SRIVASTAVA

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## Education

**Bachelor of Technology in Electronics and Electrical Engineering** Jul 2017 – Jul 2021

**Minor in Computer Science and Engineering**

Indian Institute of Technology, Guwahati, *CPI: 8.82/10.0*

**XII (AISSCE)** Apr 2016 – May 2017

Dewan Public School, *98.4%*

**X (AISSE)** Apr 2014 – May 2015

Army Public School, Yol Cantt., *CGPA: 10.0/10.0*

## Research Interests

Machine Learning, Computer Vision, Reinforcement Learning

## Experience

**Adobe Systems India Pvt. Ltd.** Jul 2021 – Present

*Software Development Engineer 2*

- Led end-to-end implementation of **Smart Tags Blocklist** in AEM Assets Essentials. Users can block smart tags considered inappropriate for an asset, and also maintain a list of such tags to be blocked for all assets.
- Integrated state-of-the-art **CLIP (Contrastive Language-Image Pre-Training)** based model with AEM Assets' automatic tagging service for improved relevance and preciseness of generic smart tags. Observed **75-90%** improvement in results as compared to previous Inception V1 model.
- **Single Point-of-Contact** for **Smart Content Services (SCS)** in AEM Assets. SCS enables automatic tagging of digital assets using pre-trained **Inception V1** model, as well as training of the image recognition algorithm on customer's business taxonomy to apply custom smart tags.
- Member of the **Adobe Experience Manager (AEM) Assets** team that provides end-to-end workflow from asset creation to delivery, and employs **Sling**, **Apache Jackrabbit Oak**, and **OSGi** frameworks.

**Media and Data Science Research Laboratory, Adobe Systems India Pvt. Ltd.** Apr 2020 – Jul 2020

*Media and Data Science Research Intern*

Mentors : Nikaash Puri, Piyush Gupta, Pinkesh Badjatiya

- Conceptualised and implemented a new Reinforcement Learning-based algorithm to extract top relevant patterns from temporal, sequential data sets.
- Trained **Deep Q-Network** using TF-Agents and extracted patterns ranked according to **user-specified measure of interest**.
- Proposed algorithm allowed Adobe to monitor and improve user-targeting based on certain Key Performance Indicators.

**Computational Vision and Fuzzy Systems Laboratory, Hanyang University** May 2019 – Jul 2019

*Research Intern*

Supervisor : Prof. Frank Chung-Hoon Rhee (Dept. of ECE, Hanyang University, Republic of Korea)

- Developed and designed a new algorithm, termed **Adaptive Shadowed C-Means (ASCM)**, to cluster data sets using **fuzzy** and **shadowed sets**.
- Reduced impact of noise in clustering by keeping outliers concentrated in the shadow region.
- Implemented our algorithm using MATLAB on **Iris data set** and **Breast Cancer Wisconsin data set**, and performed image segmentation on various sample images.

## Projects

**Expense Management Software** | Java, PostgreSQL, React, Redux, Cypress | 🐙 Sep 2021

- Built a web application to provide an automated solution to record and report business expenses. Features also include approving or rejecting expense claims filed by a user.

**Unrolled DRAGAN** | TensorFlow, Python | 📄 Apr 2021

**Final Year Bachelor's Thesis Project under Dr. Tony Jacob**

- Proposed a novel architecture called Unrolled DRAGAN (Deep Regret Analytic Generative Adversarial Network) which integrated the concept of unrolling in DRAGAN to mitigate mode collapse.
- Observed higher inception scores and reduction in mode collapse for MNIST data set, when compared to Vanilla GAN and DRAGAN architectures.

## Hand Gesture Recognition | *PyTorch, Python* |

Apr 2021

- Built a deep convolutional neural network to recognize and classify hand gestures to their correct meaning with the maximum accuracy possible, for the purpose of sign language recognition.

## Image Segmentation | *MATLAB* |

Mar 2021

- Implemented image segmentation using 3 different algorithms - region growing, watershed and K-Means, and performed comparative analysis by evaluating their Jaccard Similarity Coefficient.

## Digital Image Filters | *MATLAB* |

Nov 2020

- Coded Bilateral Filter and Non-Local Means Filter from scratch, and successfully demonstrated their smoothening and denoising characteristics.

## Codeforces Problem Recommender | *HTML, CSS, JavaScript* |

Aug 2020

- Built a website that analyzes Codeforces users and recommends problems according to their statistics.

## Accolades

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- **Samsung Fellowship Award:** Was granted fellowship by Samsung with an objective for promoting research, for my B.Tech. Project on GANs.
- **Department Rank 3:** Achieved **rank 3/47** in the department for overall academic performance.
- **Rani Laxmi Bai Award for Meritorious Students 2017:** Was felicitated by Chief Minister, Uttar Pradesh for securing **5th** rank in the State, amongst **100,000+** students in CBSE Senior Secondary Examinations.
- **Dhirubhai Ambani Scholarship Programme 2017:** Qualified for the scholarship by Reliance Foundation by securing a rank in the merit list of Standard 12th Board Examinations.
- **Certificate of Merit:** Awarded by the Government of India for outstanding performance in **Computer Science** and **English**, being amongst the top **0.1%** scorers in CBSE Boards 2017 in the entire country.
- **SRMJEEE 2017 Rank 5:** Secured **5th** rank amongst **150,000+** students that appeared for SRM Institute of Science and Technology's Joint Engineering Entrance Examination in 2017.
- **National Talent Search Examination 2015:** Qualified NTSE stage 1 and secured **6th** position in the state of Himachal Pradesh.

## Relevant Coursework

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|------------------------------------|--|---|--|
| • Probability and Random Processes | • Data Structures and Algorithms       | • Machine Learning ( <u>Coursera</u> )                | • Specialization in Generative Adversarial Networks (GANs) ( <u>Coursera</u> ) |
| • Game Theory and Economics        | • Quantum Computation and Cryptography | • Specialization in Deep Learning ( <u>Coursera</u> ) |  |
| • Computer Vision                  | • Image Processing                     |   |  |

## Technical Skills

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**Languages:** C, C++, Python, Java, MATLAB, HTML/CSS, JavaScript, React, PostgreSQL, mySQL

**Technologies/Frameworks:** Windows, Linux, GitHub, TensorFlow, PyTorch

**Miscellaneous:** LaTeX, Arduino, ArcGIS

## Positions of Responsibility

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**Project Head, Electronics Club, IITG:** Responsible for constant ideation of innovative projects, guiding juniors in club projects and administrative management of club.

**Mentor, Saathi Counselling Cell, IITG:** Mentored freshmen and helped them become acclimatized with academic and other institute activities.

**Technothon City representative, Jabalpur, 2018:** Conducted Technothon examination, managed by students of IITG, in Jabalpur, Madhya Pradesh.

## Extra-curricular

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**CodeChef October Challenge 2020 (Division 2):** Achieved **rank 661** amongst **20,000+** participants globally.  
**Flipkart Grid 2.0:** Shortlisted amongst **130** from **8,000+** teams for **Round 3** of Flipkart Software Development Challenge.

**Publicis Sapient Jumpstart 2020:** Achieved **rank 379** amongst **2,000** participants.

**Spardha 2018:** Secured 4th position in inter-hostel sports competition for Squash.