

Siddhant Bansal

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EDUCATION

International Information of Information Technology, Hyderabad, India

2019 - Present

MS by Research in Computer Science. Current Courses: Digital Image Processing and Introduction to Cognitive Science.

Vishwakarma Government Engineering College, Ahmedabad, India

2015 - 2019

Bachelor of Engineering in Electronics and Communication (CPI: 8.09/10)

WORK EXPERIENCE

CVIT LAB, IIIT-Hyderabad | Research Fellow | Advisors: Dr. C.V. Jawahar and Dr. Chetan Arora

August 2019 - Present

- Optical Character Reader (OCR) for the National Digital Library of India (NDLI) data
 - Created an OCR for Hindi, Tamil and Telugu. Worked on a semi-supervised training technique for Convolutional Recurrent Neural Network. Improved word accuracy by 2.5% and character accuracy by 5%.
- Word Retrieval and Recognition using OCR text and Deep Embeddings | [\[DAS 2020 \(ORAL\)\]](#) | [Project Page](#)
 - Improved word accuracy by 1.4% for Hindi and 1.8% for Telugu by merging text hypotheses and deep embeddings.
 - Improved word retrieval by 11.12% for the Hindi language by proposing techniques such as Naive Merge and Query Expansion.

IIT Gandhinagar | Research Intern | Advisor: Dr. Shanmuganathan Raman | [Internship Website](#)

March 2019 - August 2019

- 3D Modelling and Geometry Processing
 - Implemented a custom autoencoder for solving the problem statement of point cloud completion (Details and results on internship webpage). Also worked on ICP and Triangulation algorithms.

Meditab Software (India) Pvt. Ltd. | Artificial Intelligence Intern | [Internship Website](#)

Sept 2018 - March 2019

- ELOPE (Evolutionary Layout Optimization and Evaluator)
 - Decreased travelling time by 75% for DosePacker robots.
 - Generated optimal facility layouts, by implementing ELOPE and using it with the Genetic Algorithm.

Bennett University, Greater Noida | Artificial Intelligence Research Intern | [Internship Website](#)

June 2018 - July 2018

- Footprint Classification
 - Successful in classifying humans with up to 5 different foot sizes, by developing a custom Convolutional Neural Network trained on a dataset created with the help of 180 volunteers, using a paper scanner.

Bioscan Research, Ahmedabad | Data Analyst Intern

April 2018 - June 2018

- Patient tracker
 - Created software capable of tracking patients using Python and SQLite, leading to better workflow for the people working on collecting the brain scans.

PROJECTS

Scene Text Detection and Recognition

July 2020 - Present

- Working on detecting and recognising text in the images from Mobility Assistant for Visually Impaired (MAVI) developed at IIT-Delhi.

Automatic Garbage Detection and Collection

May 2018 - April 2019

- Created a device capable of autonomously detecting and picking up the garbage by detecting waste bottle using CNN (MobileNets), developed algorithms for estimating the depth of the garbage, and estimating the path using PID.

Anime Classification | [GitHub](#)

June 2018 - Aug 2018

- Worked on autoencoders to learn the features from 1,40,000 images. Used the trained autoencoder with added convolution layers to classify the anime to answer various questions.

Self Driving Car | [GitHub](#) | [YouTube](#)

June 2018 - July 2018

- Implement an autonomously driven car by using Deep Q Learning algorithm.

Smile Detector | [GitHub](#)

June 2018 - June 2018

- Created an end-to-end system for detecting smiling faces in a live video stream using Convolutional Neural Network.

PUBLICATIONS

- B. Siddhant, P. Krishnan, and C. V. Jawahar, "Fused Text Recogniser and Deep Embeddings Improve Word Recognition and Retrieval," in IAPR International Workshop on Document Analysis Systems (DAS), 2020. (ORAL) ArXiv: [2007.00166](#)
- Siddhant Bansal, Seema Patel, Ishita Shah, Prof. Alpesh Patel, Prof. Jagruti Makwana, and Dr. Rajesh Thakker. "AGDC: Automatic Garbage Detection and Collection." ArXiv: [1908.05849](#)