

# Naila Fatima

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## EDUCATION

### Georgia Institute of Technology, Atlanta, GA

Aug 2019 – Dec 2020

MS in Computer Science, Specialization: Machine Learning

GPA: 3.9/4.0

Coursework: Artificial Intelligence, Computer Vision, Machine Learning, Natural Language, Deep Learning, Game AI

### International Institute of Information Technology (IIIT) Hyderabad, India

Aug 2015 – May 2019

B. Tech in Electronics and Communications Engineering, Honors in Computer Vision, Dean's List

GPA: 8.65/10.0

## SKILLS

**Languages:** Python, C, C++, MATLAB, MySQL, HTML/CSS, Bash, Java

**Software:** OpenCV, TensorFlow, PyTorch, Keras, NumPy, Flask, scikit-learn, OpenPose, Git, Ubuntu, VLFeat

## EXPERIENCE

### Computer Vision Researcher

May 2017 – May 2019

IIIT Hyderabad

Hyderabad, India

- Created video blur detection models with Python and OpenCV which utilized variations in video frame intensities and a neural network to achieve 90.13% accuracy; project done in collaboration with Qualcomm
- Co-led the development of a film shot classification technique which utilized pose estimation (via OpenPose) and a rule-based approach in Python; could distinguish between close-ups, medium shots and long shots with 77.5% accuracy
- Implemented video stabilization techniques using L1 optimal camera paths and content preserving warps in MATLAB; minimized effect of camera motion on video

## PROJECTS

### Book Management System (Python, MySQL, Flask, HTML)

[Link](#)

- Devised an application which recommended books to users based on their past readings in the form of HTML webpages using the Flask-mysql library; recommendations were based on genres and authors of books frequently read by the user
- Implemented a login functionality which allowed users to keep track of books read and the ratings they allotted to them

### Automatic Essay Scoring (AES) with Bias Prediction (Python, PyTorch, scikit-learn)

[Link](#)

- Developed an AES system using machine learning models (Bayes classifier, LSTMs, BiLSTMs) with a 97% agreement among scorers on the ASAP-AES dataset
- Processed data for feature extraction and trained models to predict the age and gender of the essay author to analyze the possibility of bias in essay scoring; indicated a possible gender bias in AES

### Generational Training in Reinforcement Learning (RL) (Python, PyTorch)

[Link](#)

- Conceived a generational approach to train RL agents by exploiting the learning of the best performing agent from the previous generation; minimized runtimes by 50%
- Programmed agents (DQNs) capable of playing the Atari game SuperInvaders; reduced memory usage by eliminating the shared buffer

### GenSketch (Python, PyTorch, scikit-learn)

[Link](#)

- Programmed unsupervised models (VAE, DCGAN) to generate doodles of specific objects which looked similar to the doodles in the Google QuickDraw dataset and could be correctly identified by a trained classifier around 80% of the time
- Trained a CNN classifier to test how likely a model was to generate identifiable doodles; classifier had a 92.33% accuracy on the QuickDraw dataset

### Video Google (MATLAB, VLFeat)

[Link](#)

- Implemented object and scene retrieval to find all occurrences of a user-outlined object in a video
- Incorporated SIFT features and TF-IDF ranking to ensure robustness; performed with a rank of 0.218 indicating that images were generally retrieved in order of relevancy

## PUBLICATIONS

Kosoris, N., Fatima, N., & Das, D. (2020, April) Real Time Seam Carving. Poster session at the annual conference of IEEE International Conference on Computational Photography (ICCP), Saint Louis.