

# Ashwin Pathak

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## EDUCATION

### Georgia Institute of Technology

Atlanta, GA

*Master of Science in Computer Science with Machine Learning Specialization.*

*Aug. 2021 – Present*

- CGPA : **4.0/4.0**. Advised by: **Dr. Rishikeshan Kamaleswaran**. Expected Graduation: **Summer 2023**

### International Institute of Information Technology

Hyderabad, India

*Bachelor of Technology in Computer Science (Honors in Computer Vision)*

*Aug. 2015 – Jul. 2019*

- CGPA : **9.4/10.0 (Top 5% of the batch)**. Awarded Dean's Merit List for Academic Excellence

## TECHNICAL SKILLS

**Programming:** C | C++ | Python | Java | JavaScript | NodeJS | ReactJS | Kotlin

**Misc:** React | AWS | GraphQL | Kubernetes | Django | Git | IntelliJ | Android Studio | PyTorch | Keras | Tensorflow

**Courses:** CV | NLP | ML | DSA | Graphics | OS | CN | DBMS | AI | Distributed Systems | Software Engineering

**Languages:** English(Fluent) | Hindi(Native)

## PUBLICATIONS

### **AbuseAnalyzer: Abuse Detection, Severity and Target Prediction for Gab Posts**

2020

*International Conference on Computational Linguistics*

- Created a **fine-grained abuse detection** pipeline with an **abuse analysis dataset** comprising of 7601 gab posts with target and severity.
- Proposed a system for abuse analysis, obtaining an accuracy of 80% for **abuse presence**, 82% for **abuse target prediction**, and 65% for **abuse severity prediction**.

### **Idiomatcity Detection using Few-Shot Learning**

2022

*International Workshop on Semantic Evaluation : Co-located with NAACL*

- Detected idioms using **zero-shot and few-shot learning** using **Siamese Networks with BERT based pre-trained multilingual** models
- Achieved F-1 score of 85% in the classification task.

## EXPERIENCE

### **Amazon**

Jan. 2023 – Present

*Applied Scientist Intern*

*Seattle, USA*

- Working on Active Few-shot learning for label aware classification.

### **Doordash**

May. 2022 – Aug. 2022

*Software Engineer Intern*

*Seattle, USA*

- Designed, developed and launched the functionality of type-ahead suggestion and search for self serve inventory management for non-retail merchants.
- Tech stacks involved : **AWS, Terraform, Kotlin, Redis, React and GraphQL**.

### **Amazon.com**

Jul. 2019 – Aug. 2021

*Software Development Engineer*

*Hyderabad, India*

- Led, designed, developed and launched "Call-Off-Stock" project for **highly scaled, idempotent and concurrent** inventory tracking systems and its accounting. Worked on **AWS, CDK, Java Spring MVC and DynamoDB**.
- Launched "Invoice-By-Amazon" project as a **SME on accounting systems** for European marketplace flash-sale.
- Catered to Business customers' experience by **developing and enriching widgets** for Amazon Business homepage and navigation across **all marketplaces along with AWS** migration.
- Mentored SDEs, presented projects organization-wide and **won accolades** for accounting and tracking projects.

### **Bio-Medical Engineering Lab**

Aug. 2022 – Present

*Researcher*

*Georgia Tech and Emory Healthcare, Atlanta, USA*

- Working with Dr. Rishikeshan Kamaleswaran on **acute respiratory distress syndrome (ARDS) and cerebral edema detection**.

## Social and Language Technologies Lab

Oct. 2021 – Aug. 2022

### Researcher

Georgia Tech, Atlanta, USA

- Advised by Dr. Diyi Yang on **conversation summarization**.
- Employed self-supervision techniques to create structurally-aware and consistently robust summaries.

**Institute for high performance computing and networking (ICAR-CNR)** May. 2019 – Jul. 2019

### Research Intern

Calabria, Italy

- Interned remotely with Dr. Giuseppe Manco on **safety and security of deep neural networks**.
- Carried out intensive research on ways of fooling deep neural networks and how to mitigate them.
- Developed a **variational auto-encoders based semi-supervised learning** classifier for Nazism detection.

## Precog Research Lab

Jan. 2019 – Apr. 2019

### Research Assistant

Hyderabad, India

- Researched on **Hate Speech Detection in code-mixed Data**.
- Worked with Dr. Ponnurangam Kumaraguru on hindi-english code mixed tweets for **detection and analysis**.
- Harnessed BERT, **sub-word level semantics** with transfer learning. Demonstrated the results successfully.

## Center for Visual Information Technology

May. 2017 – Jul. 2019

### Honors Researcher on Augmented Reality

Hyderabad, India

- Researched with Dr. P.J. Narayanan (Director of the institute) on **hand-held user perspective rendering**.
- Optimized rendering using light-weighted deep neural networks on android mobiles, vuforia, unity3D and android.

## Amazon.com

May. 2018 – Jul. 2018

### Software Development Internship

Hyderabad, India

- Designed, developed and launched a new recommendations widget for **Amazon Business Homepage**.
- Implemented the **recommendations module for users based on their shopping preferences**.

## PROJECTS

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**COS Inventory Authority and Ledger** | *Java, NodeJS, AWS, CDK, ECS, DynamoDB* Aug. 2020 – Aug. 2021

- Designed a **multi-threaded** solution for tracking using **DynamoDB, S3, locks and state design pattern**.
- Implemented ledger service for sellers using **AWS step functions, CDK, NodeJS** and idempotent service calls.

**Sign Language Gloss Translation** | *Python, Pytorch, NLP, Transfer Learning, NMT* Aug. 2022 – Present

- Sign Language Gloss Translation to English using rule based machine translation techniques.

**Visual Question Answering using CLIP** | *Python, Pytorch, CLIP, VQA* Jan. 2022 – Apr. 2022

- Zero-shot classification based model for Visual Question Answering using CLIP.

**Situational Awareness for Covid-19** | *Python, Django, Causality Model* Aug. 2021 – Dec. 2021

- Created a Covid-19 tracker and predictor dashboard using granger causality model and statistical ML.

**Parallax Tolerant Image Stitching** | *Python, OpenCV, Computer Vision* Jan. 2018 – Apr. 2018

- Advised by Dr. Anoop Namboodiri on finding alignment terms corresponding to local stitching and then applying **Content Preserving Warping** for refining the results.

**Model Based Document Classification and Clustering** | *Python, Numpy, Scipy* Aug. 2017 – Nov. 2017

- Worked with Prof. Vineet Gandhi to develop a **generative model using GMMs** to cluster the documents.

## LEADERSHIP POSITIONS

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### Georgia Tech and IIIT-H

Aug. 2017 – Dec 2022

#### Teaching Assistant

Atlanta and Hyderabad

- Machine Learning, Introduction to Cognitive Science, Natural Language Processing .
- Graphics, Digital Image Processing, Digital Logic and Processors

### AlgoUniversity and Newton School

Feb. 2021 – Aug. 2021

#### Instructor and Mentor

Hyderabad, India

- Instructor for data structures, algorithms and web development with **AlgoUniversity and NewtonSchool**.

## AWARDS AND ACHIEVEMENTS

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- **Trend Setter Award** at Amazon for peculiar and innovative display of work organization-wide.
- **Pat-on-the-back Award** at Amazon for effective delivery of results.
- **National Talent Search Examination (NTSE) scholar** in 2013 conducted by NCERT.
- Stood **4th in International Commerce Olympiad** nation wide at Bombay Stock Exchange.