

# AYUSH GARG

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## EXPERIENCE

### Data Scientist, HP Inc (R&D)

📅 Sep 2018 – Jul 2021

📍 Bangalore, India

#### MLOps (March 2021 – July 2021)

- Created a framework to standardize architecture of ML projects to reuse code, data and models across multiple teams
- Input data and models spread across different hardware could be stitched together into a pipeline & used for pre-processing, training, validation
- Resulted in cohesive projects that can borrow elements from each other while increasing maintainability

#### Predifix (Oct 2018 – July 2021)

🔧 PyTorch, pandas, numpy

- Tool to guide Customer Support agents for faster resolution of printer/PC related issues
- Used Long Short Term Memory (LSTM) based Deep Neural Network (DNN) to train a model on 200K tickets
- Helped reduce Average Handling Time by approx 27%

### Software Engineer, Centurylink

📅 Aug 2015 – Sep 2018

📍 Bangalore, India

#### DeepAssist (Aug 2017 – Aug 2018)

🔧 Tensorflow 1.0, Numpy, Flask, NLTK, MySQL, AngularJS

- Recommendation engine to increase the efficiency of Ticketing system by suggesting steps for ticket resolution using Neural Network based models
- Used Attention based LSTMs to determine ticket context and recommend the most appropriate steps

#### eDeviceConnect (Feb 2016 – Aug 2017)

- Tool to provide manual and automated testing platform for mobile devices
- Created an IDE to upload, test and run BDD projects for automation testing
- Reduced testing time by 150 hrs/month by allowing remote availability of physical devices

## RESEARCH

### Vespid - Serverless platform to host Virtines

📅 Oct 2021-Present

📍 Illinois Tech

- Virtines - abstraction to allow individual functions to run in lightweight, virtual environment
- Created a platform, Vespid, that manages the lifecycle of Virtines and provides CLI and GUI to interact with the serverless functions
- Vespid is 30 times faster than OpenWhisk standalone tool
- Selected for EuroSys'22 Conference
- <https://github.com/virtines/vespid>

### Benchmarking Storage Access Patterns – BeeGFS and CephFS

📅 May 2021

📍 Illinois Tech

- Assess performance and evaluate system overheads of 2 parallel and distributed file-systems: BeeGFS, CephFS
- Benchmarked on varying native file-systems (xfs, ext4, BTRFS) with different workloads and configurations on a cluster of 4 nodes
- Both file-systems had almost no CPU or network overheads with ext4 giving the best results achieving 10% faster speeds over average

## EDUCATION

### Master's in Computer Science

**Illinois Institute of Technology, Chicago, US**

📅 Spring 2022

📊 4.0/4.0

- Courses Taken: Adv Database Adv OS Cloud Computing Serverless Computing S/W Architecture Adv Algo
- TA for OS and Online Social Network Analysis

### B.Tech in Electronics & Comm Engg

**Delhi Technological University, Delhi, India**

📅 Spring 2015

📊 3.5/4.0

- Organized Student Interest Groups & IEEE Students' Branch activities and taught at workshops
- Organizing Member in DTU Tech Fest

## SKILLS

Python Pytorch Tensorflow 1.0  
Pandas Jupyter JIRA Git MySQL  
MongoDB Serverless Computing  
Data Structures Parallel File System  
Distributed File System System Design  
BERT Transformer NLP

## ACHIEVEMENTS

🏆 **Patent-pending**  
Machine Learning Based Determination of Troubleshooting Routes Dependent on Product Feature- PCT/US2020/018268

📄 **Paper Presentation - EuroSys'22**  
"Isolating Functions at the Hardware Limit with Virtines"  
<https://arxiv.org/abs/2104.11324>

📄 **Paper Presentation**  
"Learning optimal navigation algorithms from customer support case notes" in DSKD (Data Science Conference, HP)-2019

📄 **Paper Presentation**  
"Extracting resolution steps from the unstructured logs" in DSKD (Data Science Conference, HP)-2019

🏆 **AngelHack**  
Won Hypertrack challenge at AngelHack Bangalore Hackathon 2018  
<https://www.hackathon.io/trek-o-hun1>

## HOBBIES

