Trupeshkumar Patel

Graduate Research Assistant · PH.D. Student at UA

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trupeshkumarpatel | trupeshkumarpatel | Trupesh R. Patel

Technical Skills

Programming Languages

- C/C++
- Python
- Shell Scripting
- LaTeX
- MATLAB
- Java (J2SE, J2EE)
- Maven

Databases

- PostgreSQL
- Oracle Xg
- MySQL
- MS Access

Data Science & Big data Tools

- TensorFlow
- Keras
- Horovod
- Hadoop - MapReduce
- HDFS

Web Technologies

- HTML
- CSS
- JavaScript
- JOOMLA
- JSON
- AWS
- Flask

Research Interest

- High-Performance Computing
- Deep Learning
- Machine Learning
- Image Processing & Analysis
- Computer Vision

A learner with great abilities in analytical research and expertise in High-Performance Computing, Deep Learning, Machine Learning, and Big Data Analytics. Successfully completed projects and research relating to analytical solutions and predictive analysis along with the development and maintenance of laboratory hardware and software architecture, and workflow.

Education

Doctor of Philosophy - Computer Science — *Tuscaloosa, AL*

University of Alabama (UA), USA *(transferred from UAB)* — *Aug 2021 - Present*

University of Alabama at Birmingham (UAB), USA — *Jan 2019 - Aug 2021*

Master of Science - Computer and Information Science — *Birmingham, AL*

University of Alabama at Birmingham (UAB), USA — *Aug 2016 – Apr 2018*

Bachelor of Technology - Computer Science and Engineering — *Udaipur, RJ*

Pacific Academy Of Higher Education And Research University (PAHER), India — *Aug 2011 – May 2015*

Experience

Graduate Research Assistant — *Tuscaloosa, AL*

Department of Computer science, UA — *Aug 2021 - Present*

Department of Computer science, UAB — *Aug 2020 - Aug 2021*

- Working on the NSF funded grant to improve fault-tolerance of message passing systems and to improve performance of message passing systems for heterogeneous architectures with accelerators.

Graduate Teaching Assistant — *Birmingham, AL*

Department of Computer science, UAB — *May 2019 - Aug 2020*

- CS 332/532 - Systems Programming
- CS 432/632/732 - Parallel Computing
- CS 421/621 - Advanced Web Application Development
- CS 203 - Object-Oriented Programming (Jan 2017 – Dec 2017)

Graduate Intern — *Birmingham, AL*

IT Research Computing, UAB — *Jan 2019 – Apr 2019*

- Coding and developing specific components of a complex software environment of the High-Performance Computing (HPC) cluster.

Research Assistant — *Birmingham, AL*

UAB Lung Imaging Core Lab, UAB — *June 2018 – June 2019*

- Assisted in the development of computer vision and machine learning based applications for COPD diagnosis.

Systems Administrator – Graduate Assistant — *Birmingham, AL*

X-Ray Core Facility, Center for Biophysical Science and Engineering, UAB — *May 2017 – Apr 2018*

- Systems admin for networked X-Ray and Crystallography (Windows, UNIX), Designing and maintaining UAB JOOMLA website, developed time stamp software forw employees which lead to a 25% increase in keeping track of billing.

Coursework

Intelligent Science
- Machine Learning
- Deep Learning
- Artificial Intelligence
- Natural Language Processing

Data Science
- Foundation of Data Science
- Data Visualization
- Big Data Programming
- Data Mining
- Data Management Systems
- Database System

Algorithm & Data Structure
- Advanced Algorithm and Applications
- Parallel Computing

Cyber Security
- Computer Security
- Cloud Security
- Network Security
- Cyber Risk Management

Awards

- Recipient of **Best Graduate Paper** at the ACM Mid-Southeast Chapter Conference, 2018
- Recipient of **Graduate School Dean's Scholarship** at UAB, 2019

Certifications

- **Cyber Security** – University of Alabama at Birmingham
- **Neural Networks for Machine Learning** – License *2PV4KLNGXXPG*
- **Machine Learning** – License *XM4E6JWAP96E*
- **Developing Android Application** – Aptech International
- **Advance Java Programming for web development (Oracle)** – NIIT
- **Java programming Language JAVA SE6 (Oracle)** – NIIT

Data Analyst – Graduate Assistant *Birmingham, AL*

Big Data Res. and Analytics Lab, Dept. of Elect. and Comp. Engr., UAB *May 2017 – Apr 2018*

- Extract meaningful large amounts of data and translate them into visuals, Implementing new algorithms for better results proficiency, Application development, and data analysis.

Projects

Classifying Pediatric Pneumonia From Chest X-RayBy Deep Learning Jan 2020 – Apr 2020

- we have successfully implemented transfer learning using multiple convolutional neural network architecture and with proper parameter tuning, we were able to detect pneumonia with an accuracy of around 80%.

Performance Characterization of Single and Multi - GPU Training of U-Net Architecture for Medical Image Segmentation Tasks Jan 2019 – Apr 2019

- we developed and trained U-Net on multiple configurations of GPU (single vs. multi-node) hardware in terms of memory and time efficiency towards finding optimal set up for U-Net segmentation tasks.

Automatic Segmentation of Fetal Head from Ultrasound Images using Deep Neural Networks Jan 2019 – Apr 2019

- we develop a fully automated pipeline for the segmentation of fetal head from ultrasound images using deep neural networks.

ECG Signal Measurements July 2018 – Dec 2018

- Developing algorithm for signal extraction and GUI for measurement.

Poster Presentations

- **Trupesh R. Patel**, Sandeep Bodduluri, Thomas Anthony, William S. Monroe, Pravinkumar G. Kandhare, John-Paul Robinson, Arie Nakhmani, Chengcui Zhang, Surya P. Bhatt, and Purushotham V. Bangalore. 2019. Performance Characterization of Single and Multi GPU Training of U-Net Architecture for Medical Image Segmentation Tasks. In Proceedings of the Practice and Experience in Advanced Research Computing on Rise of the Machines (learning) (PEARC '19). ACM, New York, NY, USA, Article 115, 4 pages. DOI: `https://doi.org/10.1145/3332186.3333152`
- **Trupesh R. Patel**, Pravinkumar G. Kandhare, Arie Nakhmani, Thomas Anthony, Purushotham V. Bangalore, Sandeep Bodduluri and Surya P. Bhatt. 2019. Automatic Segmentation of Fetal Head from Ultrasound Images using Deep Neural Networks. In 35th Annual Trainee Research Symposium at University of Alabama at Birmingham (UAB).

Oral Presentations

- Bodduluri, S., Nakhmani, A., Kandhare, P., **Patel, T.R.**, Reinhardt, J.M., Wilson, C., Nath, H.P., Dransfield, M.T. and Bhatt, S.P., 2019. CT-Based Airway Surface Area to Volume Ratio Is Associated with Lung Function Decline in Chronic Obstructive Pulmonary Disease (COPD). In A98. PHENOTYPING COPD AND PREDICTING THE DISEASE PROGRESSION (pp. A2411-A2411). American Thoracic Society.
- Bodduluri, S., Nakhmani, A., Kandhare, P., **Patel, T.R.**, Gerard, S.E., Reinhardt, J.M., Wilson, C., Bhakta, N.R., Castaldi, P., McDonald, M.L. and Bangalore, P.V., 2019. Prediction of Emphysema and Airway Disease from Spirometry Using Neural Networks. In D94. COPD: EPIDEMIOLOGY AND THERAPY (pp. A7039-A7039). American Thoracic Society.
- **Trupesh Patel**, Andrew Schatz and Chengcui Zhang, 2018. Classifying Basketball Players by Hall of Fame Merit. In Proceedings of the Association for Computing Machinery Mid – Southeast Chapter 2018 Fall Conference at Gatlinburg, Tennessee (pp. 66).