# ANGEL TIWARI

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## Education

**University of Florida, Gainesville, FL**
Master of Science in Computer Science
GPA: 3.55/4.0
May 2018

**Indian Institute of Information Technology, India**
Bachelor of Technology in Information Technology
GPA: 8.45/10
July 2016

## Skills

**Languages:** C++, Java, Python, SQL
**Databases:** MySQL, MongoDB
**Operating System:** Windows, Unix/Linux
**Web Technologies:** Javascript, HTML, CSS
**Keywords:** Big Data - Hadoop, MapReduce, Git, Eclipse, Visual Studio, Object Oriented Programming, AWS, Agile, RDMS, NoSQL
**Relevant Courses:** Analysis of Algorithms, Advanced Data Structures, Distributed Systems, Advanced Databases, Data mining

## Research Work

**Graduate Student Researcher**, *Li Lab, under Professor Andy Li UF, Gainesville*                    Jan 2018 - Current
- Research area -  Blockchain, Cloud
- Implemented a ticket purchase smart contract application using Solidity
- Implement smart contract, using ethereum, on a peer-to-peer network to provide computation power on the cloud for credits

## Projects

**Compiler**
- Developed a compiler from scratch for a small programming language with Java bytecode as the target language
- Implemented in Java and used ASM bytecode framework for code generation
- Tested using JUnit

**Real Time Velocity Estimation using C++ with OpenCv**
- Developed a velocity estimation application, used Background Subtraction to separate the moving vehicles from the background
- Implemented Optical Flow-Lucas Kanade algorithm to compute the time taken by vehicles to cover the distance between  frames
- Used in busy routes to divert the traffic to the paths with a higher average velocity of the traffic with 69.77 % accuracy

**Developed a Huffman Encoder and Decoder Using Java**
- Developed a Huffman Encoder to reduced the file of size 70MB  to a binary format file of size 24.6MB
- Generated the original message by creating a decode tree with encoded message and code table, using the greedy approach
- Implemented priority queue with binary heap which generated Huffman tree in 19 milliseconds. Worst case $O(n\log n)$

**Event Management System (Web Application) Using Javascript**
- Led the team of three to develop a web application using JSP, Restful API, and Jackrabbit as database
- Provided a single platform to manage events of a company

**Twitter Clone With Websockets, Using Elixir**
- Developed an engine, that is paired with WebSockets using Phoenix, to provide full Twitter functionality
- Implemented actor modeling to distribute jobs on multiple cores

**Big Data Analytics on Twitter Data(Collected with Apache Flume), Using Python**
- Configured single node setup to familiarize with the Map Reduce and Distributed File Systems.
- Configured Multi-node cluster setup to enable exchange between two or more machines i.e. Master and slaves.
- Analyzed data to find the popular product among users by observing users responsible for most retweets.

**BitCoin Mining on Distributed Systems, Using Elixir**
- Configured a sever, using genserver, which mines coins and distributes the subproblems to different workers.
- Obtained the ratio of CPU time to real-time as 7.6, indicating effectively usage 8 cores in the computation.

**Recognizing Handwritten Digits Using Python- scipy, numpy, pandas**
- Designed and trained a multilayer neural network to classify digits from 1 to 10 written in different handwritings.
- Improved the accuracy using cross-validation. Achieved 94.9 % accuracy on a set of 10,000 images.

## Employment

**Vizexperts Pvt Ltd**, *Software Engineer Intern*, Gurgaon, India                    Jan 2016 - May 2016
- Developed mission preview module which helped the client to test the mission entities prior to real-time simulation
- Developed an interface where the user can create a visual scenario using the geospatial data and entities for missile testing
- **Technologies**: Javascript, OpenLayers, Cesium