

---

## Software Development Engineering | Distributed Computing | Big Data | Machine Learning

Enthusiastic Computer Science PhD graduate with strong understanding in Data structures and Algorithms. Passionate about creating and implementing high quality innovative solutions to complex problems.

### EDUCATION

---

**PURDUE SCHOOL OF SCIENCE, IUPUI, IN, UNITED STATES** May 2021  
DOCTOR OF PHILOSOPHY IN COMPUTER AND INFORMATION SCIENCE (GPA 3.67/4.0)

**KYUNGPOOK NATIONAL UNIVERSITY, DAEGU, SOUTH KOREA** July 2012  
MASTER'S IN COMPUTER SCIENCE AND ENGINEERING (GPA 4.01/4.5)

**UNIVERSITY OF ASIA PACIFIC, DHAKA, BANGLADESH** April 2008  
BACHELOR'S IN COMPUTER SCIENCE AND ENGINEERING (GPA 3.91/4.0) (**Class Valedictorian**)

### CORE COMPETENCIES

---

#### EXPERTISE

Distributed Systems, Scalability, Algorithms, Software Engineering, Big Data, Object Oriented Design & Programming, Parallel Programming, Database Systems, Machine Learning, Artificial Intelligence, Deep Learning, NLP, Sentiment Analysis, Topic Modeling, OWASP, CWE

#### PROGRAMMING LANGUAGES

Python, Java, C#, C, C++, CUDA, MATLAB, JavaScript, React JS, PHP, XML, HTML5, CSS, SQL, MySQL

#### TOOLS AND TECHNOLOGIES

AWS (EC2, EMR, S3), IBM Cloud, Map Reduce, Hadoop, Pig, Hive, Cloudera, Junit, PyUnit, Selenium, Flask, Spring Boot, CBMC, JBMCM, SPIN, TLA+, Bootstrap, Kafka, Google Map API, Oracle, SQL Server, Android SDK, Tableau, Anaconda, TensorFlow2, Scikit-Learn, Pandas, SciPy, Matplotlib, NumPy, NLTK, Gensim, TextBlob, Turicreate, GitHub, LaTeX, IntelliJ, Google Colab, Linux

### TECHNICAL PROJECTS

---

- [Personal Project] Detecting Android malicious Apps** Spring 2021
- Extract 28,170 features for each App; Use data sets containing 1,200 benign Apps and 2,500 malicious Apps; Use ensemble of multiple classifiers to improve the detection accuracy; Reach detection accuracy as 90.07% (Python, TensorFlow2)
- [Personal Project] Analyze the Sentiment of Tweets from Twitter Data** Fall 2020
- Compare two different topics and identify the popular one based on the most recent Tweets sentiment (Tweepy in Python, IBM Watson NLP)
- [CSCI 59000 Big Data Management] App's user sentiment analysis in terms of reviews** Fall 2018
- The dataset contains 2,357 Google PlayStore Apps with App's basic details and 10,680,22 number of reviews (*Python, MySQL, Selenium, Cloudera-CentOS-OS, Hadoop, Map Reduce, Sqoop, Hive*).
- [CSCI 50700 Object Oriented Design & Programming] Online Marketplace** Spring 2018
- Developed a distributed marketplace based on Java RMI using Object Oriented design patterns including architectural, structural, behavioral and infrastructure patterns.
- [CSCI 53700 Distributed Computing] Distributed System in Java** Fall 2017
- Developed a distributed system based on Java using a master object and four process objects that supports clock consistency with the concept of logical clock.
- [CSCI 50400 Computer Organization] Prime Factorization with Parallel Execution in CUDA** Spring 2017
- Implemented a factorized integer of size  $10^{16}$ , an improved running time compared to the serial execution (*PyCUDA*).

## WORK EXPERIENCE

---

**Teaching Assistant, Indiana University - Purdue University Indianapolis, USA** Jan 2017 – May 2021

- [CSCI 50900: Software Quality Assurance] | [ECE 49500: Principles of Software Design] | [CSCI 45000: Principles of Software Engineering] | [CSCI 36200: Data Structures]

**Programmer Analyst Intern, Corteva Agriscience, USA** May 2020 – Aug 2020

- Developed three front-end window applications and upgrade one module in environmental exposure assessment system (*C#, SQL server, Advanced Installer*)
- The applications greatly reduce the level of modeling effort, from weeks down to < 1 day

**Assistant Professor, University of Asia Pacific, Bangladesh** Oct 2013 – Dec 2016

- Courses taught: Compiler Design, Operating System, Software Development, Computer Programming
- Consistently ranked as the **best teacher** of the department achieving **96% rating** per student evaluation

**Research Engineer, National ICT Research Center of Australia, Australia** Sep 2012 – Aug 2013

- Designed and developed a secure embedded micro-kernel-based safety critical system (*C, AUTOSAR OS*)

## RESEARCH EXPERIENCE

---

**Security-related and Evidence-based Holistic Rating Framework to Identify the Right Apps in Distributed Platform** [PhD research] Jan 2017 – May 2021

- Quantify the trust of software apps based on programmatic view and user perception (*Python, Selenium, MySQL, IBM Watson NLP API, Machine learning, Static code analysis, Linux*).

**COVID CV: A System for Creating Holistic Academic CVs during a Global Pandemic** [IU Office of the Vice President Funded Project] Sep 2020 – May 2021

- Color-coded CV from the user's data entries documenting the work and home life and categorizing corresponding events as good or bad. (*React JS, Spring BOOT, Java, MySQL, HTTPS*).

**Community Data Analytics for Social Harm (CDASH)** [NSF Funded Project] Aug 2017 – Dec 2020

- Building distributed software control systems for near real-time policing of heterogeneous social harm events (*AWS, C#, Java, Spring Boot, Kafka, MySQL, Google Map API*).

**seL4-AUTOSAR: Safety Critical Systems with seL4** Sep 2012 – Aug 2013

- Design and implementation of a secure embedded microkernel-based Safety-Critical-System (*C, Linux*).

**Automated Scenario Generation for Model Checker Trampoline OSEK/VDX OS** Sep 2010 – Jul 2012

- Implement an automated environment model based on structural data dependency information of the source, able to reduce the memory space up to 38% and runtime up to 82% compared to other existing technique (*C, Linux*).

## HONORS AND AWARDS

---

- IUPUI-Gersting Award for an Outstanding Graduate Student (Science) 2021
- Student Scholar, Grace Hopper Celebration 2020
- Best Presenter, IEEE 20th International Conference on Computer and Information Technology 2017
- Chair, Organizing Committee, The 2016 ACM-ICPC Asia Dhaka Regional Contest 2016
- Co-Contest Director, 2016 Bangladesh National Collegiate Programming Contest 2016
- Korean Government Scholarship 2009 - 2012
- Vice Chancellor's Gold Medal for securing first position in undergrad level 2008
- Finalist, The 2007 ACM-ICPC Asia Dhaka Regional Programming Contest 2007
- Champion, University of Asia Pacific application development contest 2007