# Md Shahriar Iqbal

550 Assembly St, Columbia, SC 29201
✉ miqbal@email.sc.edu iqbal128855 shahriariqbal +1 (346) 763-8670

## Education

**University of South Carolina**, Columbia, SC
PhD student in Computer Science and Engineering — Aug. 2018 – Current.
Advisor. **Dr. Pooyan Jamshidi**
Conc. Configurable Systems and Optimization

**University of Central Florida**, Orlando, FL
MS in Electrical Engineering — Aug. 2013 – Dec. 2014
Conc. Robotic Grasping

**University of Dhaka**, Dhaka, BD
BS in Applied Physics, Electronics and Communication Engineering — Apr. 2006 – Jun. 2011

## Professional Experience

**Johnson Space Center— Vehicle Navigation**, Houston, TX
Computer Engineer (Contract) — April. 2018 – July. 2018

- Developed an automated solution to identify critical points in vehicular navigation trajectory.

**Hewlett Packard Enterprise— Data Center Infrastructure**, Houston, TX
System Software Engineer II — Nov. 2015 – Feb. 2018

- Developed the analytics segment for `HPE Workload Advisor` that utilizes a message passing protocol between subcomponents in a distributed environment to identify bottlenecks using live and aggregate data.
- Developed a system to identify irregular workload behavior of enterprise applications in rack, blade, and tower servers using a one shot classifier with semantics.

**Hewlett Packard— Server Performance Engineering**, Houston, TX
System Software Engineer — Jun. 2015 – Nov. 2015

- Developed a data collection tool `LinuxKI` that tracks Linux network system calls to capture inbound and outbound statistics per socket, capture futex calls and C-state transitions for each CPU and memory mapped files utilizing a state machine design which is in use by internal HPE engineers for system performance tuning.

## Research Experience

**University of South Carolina— Artificial Intelligence Systems Laboratory**, Columbia, SC
Graduate Assistant — Aug. 2018 – Current.

- Developed a cost-aware multi-objective optimization algorithm `FlexiBO` to find Pareto optimal solutions in Deep Neural Network systems in resource constrained edge and IoT devices.
- Developed a tool called `CADET` to performance debug and control software systems using graphical causal models by intervention using ranked counterfactual queries.
- Implemented transfer learning methods for performance modeling of Deep Neural Network systems.
- Taught Java programming and data structure courses, graded assignments and milestones for capstone senior design projects.

**University of Central Florida— Computational Control Systems Laboratory**, Orlando, FL
Research Assistant — Aug. 2013 – Apr. 2015

- Developed automated grasping algorithms, interfaced Baxter Research Robot with IH2 Azzura hand, programmed Baxter robot to implement developed algorithms, conducted literature reviews and assisted undergraduate students on research projects.
- Assisted designing course material for Electrical Machine course, graded homework and programming assignments and acted as a web master.

## Skills

**Programming Language:** Python, C, C++, Java, Scala.
**Distributed System Tools:** Spark, Hadoop, HDFS, Map Reduce, Rabbitmq, Docker, OpenMP, CUDA.
**Databases:** Cassandra, Elasticsearch, Postgres.
**Machine Learning:** Tensorflow, PyTorch, Keras, Scikit-Learn, BoTorch, GPyOpt, anake-causal, dowhy, CuDNN.
**OS:** Linux, Windows, Android.

## Publications

- **MS. Iqbal**, L. Kotthoff and P. Jamshidi; Transfer Learning for Performance Modeling of Deep Neural Network Systems; USENIX conference on Operational Machine Learning (OpML) May 2019, Santa Clara, USA.
- **MS. Iqbal**, R. Krishna, MA. Javidian, B. Ray and P. Jamshidi; CADET: Debugging Misconfigurations using Counterfactual Reasoning; Machine Learning for Systems Workshop at Neural Information Processing Systems (NeurIPS) December 2020.
- **MS. Iqbal**, J. Su, L. Kotthoff and P. Jamshidi; FlexiBO: Cost-Aware Multi-Objective Optimization of Deep Neural Networks; Submitted to Journal of Artificial Intelligence and Research (JAIR).
- **MS. Iqbal**, R. Krishna, MA. Javidian, B. Ray and P. Jamshidi; CAUPER: A Causal Approach to Mitigate Non-Functional Faults Resulting from Misconfigurations; Submitted to European Conference on Computer Systems (EuroSys) April 2021, Edinburgh, UK.

## Course Projects

Network Security — Aug. 2019 – Dec. 2019
- Developed enhanced Android App-Repackaging Attack on In-Vehicle Network.

Computer Architecture — Aug. 2019 – Dec. 2019
- Implementation of an algorithm to compute the scheduling requirements of MIPS assembly language programs.

Operating System — Aug. 2018 – Dec. 2018
- Designed a system for developing power aware algorithms for Scala Akka Dispatcher to reduce resource starvation which results in decreased power consumption.

Compiler Construction — Jan. 2019 – May. 2019
- Development of a simple C compiler to handle variable declarations, expressions, functions, statements with semantic error checking and pointer and array operations.

Robotic Grasping and Control — Aug. 2013 – Apr. 2015
- Developed a learning system to grasp unknown objects using Weighted Random Forest Algorithm from selective image and point cloud features.
- Implemented autonomous robot grasping strategy using Convolutional Neural Network and used Gramian Angular Field for feature visualization.

## Awards and Services

- Hewlett Packard Enterprise Innovation Recognition, Dec. 2016.
- Graduate Fellowship at University of Central Florida, Aug. 2013 - May 2014.
- Undergraduate Talent Pool Scholarship at University of Dhaka, May 2012.