

# Kanchan Chowdhury

Webpage: [kanchanchy.github.io](https://kanchanchy.github.io)

Linkedin: [linkedin.com/in/kanchan-chowdhury-5729699a](https://www.linkedin.com/in/kanchan-chowdhury-5729699a)

Email : [kchowdh1@asu.edu](mailto:kchowdh1@asu.edu)

Mobile : +1-480-410-8677

## RESEARCH INTERESTS

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Big Data Systems, Machine Learning, and Geospatial Data Analytics

## EDUCATION

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- **Arizona State University** Tempe, Arizona  
*PhD in Computer Science* *Aug. 2018 – Jul. 2023 (Expected)*
  - **Graduate Courses:** Distributed Database Systems, Fundamentals of Statistical Learning, Data Mining, and Statistical Machine Learning
- **Chittagong University of Engineering and Technology** Chittagong, Bangladesh  
*Bachelor of Science in Computer Science and Engineering* *Mar. 2010 – Nov. 2014*
  - **Undergraduate Courses:** Programming in C/C++, Object Oriented Programming, Data Structure, Algorithms, Software Engineering, and Artificial Intelligence

## EXPERIENCE

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- **Data Systems Lab @ASU** Tempe, Arizona  
*Research Assistant* *Aug. 2018 - Present*
  - **Spatial Query Analysis:** Research on reducing the query time for large-scale GPS trajectory data.
  - **NLIDB Benchmark:** A benchmark for evaluating natural language to SQL query synthesis approaches
- **Arizona State University** Tempe, Arizona  
*Teaching Assistant* *Aug. 2018 - Present*
  - **Courses:** Distributed Database Systems, Data Processing at Scale, Object Oriented Programming and Data Structure, Principles of Programming with Java and Python, Programming of Programming with C++
- **Gagagugu PTE LTD** Dhaka, Bangladesh  
*Software Engineer* *Jan. 2017 to Jun. 2018*
  - **Projects:** Android applications featuring functionalities related to social networking and communication systems.
- **Le Chef Plc** Dhaka, Bangladesh  
*Android Application Developer* *Aug. 2015 - Dec. 2016*
  - **Projects:** Android applications featuring services such as online order and reservation systems for restaurants
- **ICT Division** Bangladesh  
*Trainer of Mobile Application Development* *May 2015 - Jul. 2015*
  - **Responsibilities:** Trained about 100 undergraduate students on topics related to Android development.

## PROJECTS

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- **Hotspot Analysis:** Calculating Getis-Ord statistic of NYC Taxi Trip data, performing spatial queries and range join.
- **Optimizing Hyperparameters:** Comparing Bayesian optimization and grid search for optimizing CNN parameters.
- **Multi-layer Neural Network from Sketch:** Sketch implementation of a multi-layer neural network and functions such as activation, loss, dropout, forward and backward propagation, etc. using numpy.
- **End-to-End Database Communicator:** An end-to-end system takes a natural language question through user voice, translates the voice to text question, generates SQL query for the question, summarizes the SQL output and plays the audio of the summary.

- **SparkSQL Data Visualization:** Consists of two parts: an API in Scala retrieves the data stored in SparkSQL using spark clusters and a Javascript front end visualizes the data using deck.gl visualization library.
- **GGfone:** An Android application featuring international calls, wifi calls, and credit balance transferring between users.
- **GagaGugu:** An Android application featuring social networking and communication such as messaging, post sharing.
- **Image Classification:** Implementation of CNN using Keras framework for classifying MNIST dataset.
- **Tic Tac Toe:** An Android OS based childhood game supporting multi-player via Bluetooth connection.

## PUBLICATIONS

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- Venkata Vamsikrishna Meduri, **Kanchan Chowdhury**, Mohamed Sarwat; Recurrent Neural Networks for Dynamic User Intent Prediction in Human-Database Interaction. *22nd International Conference on Extending Database Technology*, 2019.
- **Kanchan Chowdhury**, Lamia Alam, Shyla Sarmin, Safayet Arefin, Mohammed Moshiul Hoque; A Fuzzy Features Based Online Handwritten Bangla Word Recognition Framework. *18th International Conference on Computer and Information Technology*, 2015
- Md. Ashraf Uddin, **Kanchan Chowdhury**, Liton Kumar Ray; Finding, Counting, and Highlighting all Triangles in Large Graphs. *International Conference on Robotics, Electrical and Signal Processing Techniques*, 2019

## TECHNICAL SKILLS

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- **Languages:** Java, Python, C, C++, Scala, Javascript, SQL, HTML
- **Tools and Libraries:** Apache Spark, Hadoop, AWS, PyTorch, Scikit-learn, Keras, TFLearn, Android SDK
- **Databases:** MySQL, PostgreSQL, SparkSQL, SQLite, MongoDB
- **Others:** Deck.gl Data Visualization Library, Jupyter Notebook, Rest API, Various Google APIs, CSS, MVP Design Pattern, JSON Parsing

## PARTICIPATION AND AWARDS

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- Recipient of CIDSE Doctoral Fellowship at Arizona State University for the academic year 2018-2019.
- Recipient of Honors award from Chittagong University of Engineering and Technology for excellent academic result.
- 2nd Runner-up at National Hackathon organized by ICT Division of Bangladesh in 2014 for proposing solution to a national problem in country.
- 2nd Runner-up at Mobile Application Code Hub organized by Bangladesh University of Engineering and Technology in 2014.
- 6th at Inter University Programming Contest organized by Chittagong University of Engineering and Technology in 2012.
- Recipient of University merit scholarship in seven terms out of eight terms of undergraduate studies.

## PROBLEM SOLVING

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I solved 305 problems in UVa Online Judge, 46 problems in Light OJ and participated in many programming contests both in real-time and online. I also answered some questions in StackOverflow.