Kalyan Roy

Personal Information

South Katia, Satkhira Sadar, Satkhira-9400, Bangladesh
kalyanroy.sat007@gmail.com +8801749888998
Google Scholar
https://kalyanroy1995.github.io/

Education

BS in *Computer Science and Engineering* at **North South University**, Dhaka, Bangladesh
August, 2014 - December, 2019

Specialization Courses : Artificial Intelligence, Neural Networks
Theory of computation

Work Experiences

- Research Assistant (RA) at **North South University**, Dhaka, Bangladesh
  November, 2018 - Present
  Supervisor : *Dr. Ahsanur Rahman*
  Research Area : Graph Theory, Data mining
  Responsibilities : Implemented an algorithm to enumerate dense-subgraph in a graph.
  Tested the algorithm with real and synthetic graphs.

- Teaching Assistant (TA) at **North South University**, Dhaka, Bangladesh
  January, 2019 - September, 2019
  Courses Assisted : Data Structures and Algorithm
  Design and Analysis of Algorithms
  Programming Language I
  Responsibilities : Setting question papers ; Checking answer scripts ; Helping students.

Research Interests

Algorithms, Graph Theory and Data mining

Publications

Journals

- **A Step towards Information Extraction : Named Entity Recognition in Bangla using Deep Learning**
  Redwanul Karim, M.A. Muhaiminul Islam, Sazid Rahman, Saif Ahmed Chowdhury, Kalyan Roy, Adnan Al Neon, Md. Sajid Hasan, Adnan Firoze, Rashedur M. Rahman
  Publisher : IOS Press
  DOI : 10.3233/JIFS-179349

Conference Papers

- **Crime Prediction Using Multiple-ANFIS Architecture and Spatiotemporal Data**
  Mashnoon Islam, Redwanul Karim, Kalyan Roy, Sadat Hossain, Saif Mahmood, Rashedur M. Rahman
  Publisher : IEEE Intelligent Systems IS'18
  DOI : 10.1109/IS.2018.8710564

Research Projects

- **A Fast Algorithm to Enumerate Maximal Quasi-cliques in a Graph**
  Description : *Our goal is to design and implement an exact algorithm to enumerate dense portions (a.k.a., dense subgraphs or quasi-cliques) of a network (a.k.a., graphs). We are employing known theorems from graph theory as well as deriving new theorems for this purpose. Thus, our research mainly falls under the area of theoretical computer science. However, we believe our algorithm will have a wide range of applications in diverse fields.*
  Technology : *C, C++, Python, Bash, NetworkX, Matplotlib, Seaborn*
  October, 2018 - Present

- **An Algorithm to Find Near Minimal Vertex-cover in a Graph**
  Description : *This research falls under the area of graph theory. We are working to find the near minimal vertex cover in a graph in polynomial time as the optimal solution for finding minimal vertex cover is an NP-complete problem.*
  Technology : *C, C++, Python, Bash, NetworkX*
  June, 2020 - Present

Academic Projects

- **Bangla Automatic License Plate Recognition (ALPR) System**
  Description : *In this project, we collaborated with a company named Headblocks. We built a system that recognizes multiple vehicles license plates at a time. It works even if the taken videos of license plates are skewed, faded and blurry and taken at night or in dark light with high accuracy.*
  Technology : *Python, PyTorch, OpenCV*
  January, 2019 - September, 2019

- **A Unified Platform for Face Recognition - Deep Learning and Conventional Approach**
  Description : *In this project we built a unified platform for face recognition, in which deep learning and conventional models were integrated i.e., YOLOv2, Haar feature-based cascade classifier. Using this platform we can compare the performance of different face recognition models.*
  Technology : *Python, TensorFlow, OpenCV*
  January, 2018 - April, 2018

Skills

Programming Languages	: C, C++, Python, R, Java, Bash
Version Control	: GIT
Database Tools	: MySQL
Open Source Tools	: Vim, Tmux, Valgrind, GNU profiler (gprof), GNU parallel
Office Software	: LaTeX, Microsoft Office

Awards and Participation

Participated in ICPC Dhaka Regional Site 2019
Participated in ICPC Dhaka Regional Site 2018
Participated in the Bangladesh Mathematical Olympiad National Site 2012