

MD ABDUR RAHMAN

Associate Professor of Computer Science
Department of Mathematics
Jahangirnagar University
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M.S., Texas A&M University (TAMUC), TX, 2014

Major: **Computational Science (GPA: 3.65)**

Area of Emphasis: Intelligent Information System & Machine Learning

Thesis Title: Multi-Agent Coordinated Path Planning using Improved Artificial Potential Field-Based Regression Search Method

Advisor: [Professor Dr. Sang C. Suh](#)

OBJECTIVE

I got experience to teach various courses to universities, and also to develop single web applications for my clients **Bank of America** as well as **Fidelity Investments**. These exclusive experiences made me to handle different issues to be fixed efficiently using new tools/libraries.

For research, I love to work with robotics or machine learning. Currently, I am having sound knowledge with python and its libraries for data analysis and prediction based on machine learning as well as deep learning approaches (RNN, LSTM, CNN-LSTM). Now, my focus is to analyze dataset of energy demand and consumption which have about two million observations to find the hidden patterns, and prediction of future uses of energies. Also, detection of cyber attacks based on machine learning is my interest area.

EXPERIENCES

- 12/2016-present Associate Professor, Dept. of Mathematics, **Jahangirnagar University (JU)**, Bangladesh
- 10/2002-12/2016 Lecturer-Assistant Professor (Full-Time Faculty), Dept. of Mathematics (JU), Bangladesh
- 09/2016-present Adjunct Faculty (**E-Business, Computer Information Systems**), Dept. of Management, **North South University**, Bangladesh
- 09/2018- present Adjunct Faculty (MIS), **Dept. of MBA (Executive)**, Southeast University, Bangladesh
- 01/2018- 05/2020 Adjunct Faculty (**Data Mining, Web Technologies**, Developing Information System, MIS), Dept. of Computer Science & Engineering, Southeast University, Dhaka, Bangladesh
- 01/2017-05/2017 Adjunct Faculty (Data Structure, Computer Architecture and Organization), Dept. of Computer Science & Engineering (CSE), Daffodil International University, Dhaka
- 10/2014-07/2016 IT Consultant, **Dizer Corp**, Painesville, OH 44077, USA
(Client: **Bank of America, Fidelity Investments**)
- 08/2012-05/2014 Graduate Assistant (Data Structure (C++), JAVA, Web Applications), **Texas A&M University-Commerce**, TX, USA
- 01/2012-05/2012 Graduate Assistant (C++), **South Dakota School of Mines & Technology, SD, USA**
- 01/2006-12/2006 Adjunct Faculty, Dept. of CSE, International Islamic University Chittagong, Dhaka
- 01/2005-12/2005 Adjunct Faculty, Dept. of CSE, Green University of Bangladesh, Dhaka
- 08/2001-10/2002 Lecturer (**Former Full-Time Faculty**), Dept. of CSE, Asian University of Bangladesh, Bangladesh

RESEARCH INTERESTS

Multi-agent Path Planning, Machine Learning, Deep Learning, Big Data, Smart Agriculture, Image Processing, Cyber Security, and Networking.

COURSES TAUGHT

Data Structure and Algorithms, Object Oriented Programming (C++), C, PL/SQL, (JU);
MIS (E-Business, Computer Information Systems), NSU;
MIS & Decision Making Techniques, MBA (**Executive**), SEU;
Data Mining, Web Technologies (**angularjs, nodejs, express, mysql**) (CSE, SEU);
Computer Architecture & Organization, Data Structure and Algorithms, DIU;

EDUCATION

Master of Science,
May 2014

Computational Science from Computer Science & Information Systems
Texas A&M University-Commerce, TX 75428.

Coursework: Artificial Intelligence (Machine Learning) (Python), Image Processing, Computer Architecture (C), Algorithmic Design (C++), Automata Theory (Java), Introduction to Computational Science (Python), Information Structures (C++), Java Programming, etc.

Bachelor of Science,
2001

Bachelor of Science from Electronics & Computer Science, Jahangirnagar University, Dhaka, Bangladesh 1342.

SKILLS for DEVELOPING WEB APPLICATIONS

Language & Frameworks	C, C++, Java, Python (pandas, numpy, scipy, scikit-learn, keras , tensorflow,), Spring, Hibernate, JavaScript, AngularJS, NodeJS, Express , jQuery, AJAX, PL/SQL, SQL, MATLAB, Apache Hive, Apache Spark, Sqoop, Pig, etc.
Operat. Sys. Server	MAC OS X, Linux , Windows, MS DOS Apache Tomcat 9.0 , GlassFish, Oracle Weblogic, XAMPP
Databases	HADOOP , Oracle, MySQL, MongoDB
Source Control	Git, GitHub, GitLab
Build & Deploy	Jenkins, Maven, IBM Urban Code Deploy
Others Editors	Agile methodology, Atlassian JIRA, VersionOne, NPM, Grunt, Bower, Gulp. LaTeX , Eclipse, NetBeans, Sublime Text 3.0, WebStorm

PUBLICATIONS IN JOURNAL & CONFERENCES

- Md. Abdur Rahman, Sang C. Suh, Jinoh Kim, "Detection of Distributed Denial of Service Attacks based on Machine Learning Algorithms", *SDPS Journal of Integrated Design & Process Science* (submitted).
- Sang C. Suh, Jinoh Kim, Md. Abdur Rahman, "A Path Planning Technique to Avoid Collisions For Multi-Agent Using Improved Artificial Potential Field Based Regression Search Method", *SDPS 2018 BOLOGNA Workshop (Society for Design and Process Science)*, Bologna, Italy, December 6-7, 2018.
- **Md. Abdur Rahman**, Mohammad Abdul Hoque, "Markovian Decision Process Analysis on Traffic Congestion at Dhaka City", *2018 International Conference on Recent Advances in Mathematical and Physical Sciences*, Bangladesh, January 27-29, 2018.

- **Md. Abdur Rahman**, Md. Abul Kalam Azad, “To Escape Local Minimum Problem for Multi-Agent Path Planning using Improved Artificial Potential Field-Based Regression Search Method”, *International Conference on Information Technology, Singapore* (www.icit.org), December 27-29, 2017.
- Md. Abul Kalam Azad, **Md. Abdur Rahman** and Amina Khatun, "A Skewed Slot Scheduling Approach For Real-Time Data Transmission in Industrial Wireless Sensor Networks", *International Journal of Engineering Sciences & Research Technology*, 6(3), March 2017.
- Md. Abul Kalam Azad, Amina Khatun, and **Md. Abdur Rahman**, "A Slotted-sense Streaming MAC for Real-time Data Transmission in Industrial Wireless Sensor Networks", *International Journal of Advanced Engineering Research and Science*, Vol-4, Issue-3, Mar- 2017.
- Md. Abul Kalam Azad, **Md. Abdur Rahman** and Amina Khatun, "An Energy-Efficient Slotted MAC for the Real-time Applications in Industrial Wireless Sensor Networks", *International Journal of Electronics Communication and Computer Engineering*, vol. 8, Issue 1, pp. 69-75, 2017.
- **Rahman, Md. Abdur** (2014), “Multi-Agent Coordinated Path Planning using Improved Artificial Potential Field-Based Regression Search Method”, **Master’s thesis, Texas A&M University-Commerce, USA**. Retrieved from <http://dmc.tamuc.edu/cdm/ref/collection/p15778coll7/id/275>
- A Comparative Study of Genetic Algorithm and Bisection Methods for Solving Transcendental Equations, *Journal of Mathematics and Mathematical Sciences*, Vol. XXIII, pp 15-22, 2008
- Efficiency Comparison of Routing Algorithms with Load Balancing, *Journal of Mathematics and Mathematical Sciences*, Vol. XXIII, pp 63-71, 2008.
- Impact of Selecting Queues for Service Quality Assurance of Voice Traffic, *Journal of Science and Technology*, Vol. 6, June 2008, ISSN 1994-0386.
- Genetic Programming: Novel Network Attacks Detection, 8th International Conference on Computer and Information Technology, Vol.8, pp 772-777, December 2005, <http://www.iccit.org>, ISBN :984-32-2873-1.
- Lower Overhead Authentication Stream using Erasure Codes, 8th International Conference on Computer and Information Technology, Vol.8, pp 1106-1111, December 2005, <http://www.iccit.org>, ISBN : 984-32-2873-1
- Bezier Curve as an Efficient Off-Line Path Planner, *Journal of Mathematics and Mathematical Sciences*, Vol. XIX, pp 63-72, 2004

PROJECTS

- **Machine Learning for the Classification of Rice Plant Diseases**
- **Disease Detection of Tomato Plant using Deep Learning**
- **Prediction of Traffic Congestion at Dhaka City based on LSTM**

EXPERIENCES

- As a **Full Stack Developer**, **E-Grading System** has been developed to convert grade, calculate GPA and CGPA. Also, data moves one layer to another through approval. Finally, students/parents can access to student portal to see the results. This whole thing is done through uploading files and clicking buttons. There is no need to use keyboard for entering data into this system.
- Taught the following courses: Data Structures & Algorithms, Algorithm Design (C++), E-Business, C, C++, SQL, PL/SQL, Assembly Language, Computer Architecture, Computer Interfacing & Applications, Electrical Circuits, Introduction to Computer Science.
- Supervised single page web applications’ projects such as **student portal**, **electronic examination systems**, **E-Library** for the students using angularjs, java, jsp, mysql for tables and stored procedure.

- Involved in research in **Image Processing & Robotics**. Experienced to control **iRobot** through using **1280 Seeduino microcontroller** and C language.
- Grade and counsel the courses such as **C** and **Java Programming, Information Structures(C++)**, **Introduction to Web Applications**, as well as **lab works**, as well as assignments. Perform the other duties assigned by assigned professor.
- Delivered **two lectures** in Java Programming to undergraduate students for my professor & counseling the course, Java programming. Assisted students in labs for the courses: **Information Structures with C++**, **Introduction to Web Application**.
- Extract required information in different arrays from multi pages by providing link of starting page. This program can collect information through visiting one to another page for first item, and then return to next to first item to do same jobs for second item until last items. (Platform: **C, C++**, **LIBCURL library function**)
- Worked in designing, developing and testing internet/intranet web-based applications, client/server applications with **Java, J2EE technologies**, and **OO Design patterns**.
- Proficient in developing advanced web-based applications design and development using **Java, J2EE, Servlets, JDBC** and Databases (Oracle, MySql).
- Hands on development experience in **Core Java** and **J2EE Patterns** like **Factory, Singleton, Prototype, MVC, Proxy, Front Controller, DAO**, etc.
- Extensive experience in designing front end interfaces using **HTML, CSS, JSP, CSS, Java Script, Angular JS, Highcharts, JQuery and Ajax**.
- Experience in working with build tools like **Maven** build scripts, providing logging facility using **Log4j**, writing **JUnit test cases**.
- Experienced in designing transaction processing systems deployed on various application servers including **Tomcat, Weblogic, GlassFish**.

REFERENCES

Sang C. Suh, Ph.D

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 Professor, BRAC Business School, Brac University
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May 20, 2020


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