Moinul Morshed Porag Chowdhury

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Education

The University of Texas at El Paso (UTEP) *(Aug 14 – May 20)*
Doctor of Philosophy in Computer Science. (GPA: 3.78)
Dissertation title: "Autonomous Trading Strategies for Dynamic Energy Markets"
Advisor: Dr. Christopher Kiekintveld

The University of Texas at El Paso *(Aug 14 – May 17)*
Master of Science in Computer Science. (GPA: 3.78)

Bangladesh University of Engineering and Technology (BUET) *(Jan 05 – Feb 11)*
Bachelor of Science in Computer Science and Engineering. (GPA: 3.65)

Research Experiences

Intelligent Agents and Strategic Reasoning Lab, UTEP   El Paso, USA
Research Associate   *(Aug 14 – Present)*

- Investigating and developing autonomous retail market bidding algorithm for trading agents using AI and empirical game theoretic analysis with deep reinforcement learning to maximize agent's profit in retail markets.
- Leading a team of 3 to develop an autonomous trading agent to participate in PowerTAC annual AI competition.
- Have designed a new state-of-the-art autonomous Periodic Double Auction (PDA) bidding algorithm for AI trading agents using Monte Carlo Tree Search (MCTS) and REPTree price predictors.
- *Technologies used in this employment*: Java, Spring, Deeplearning4j, Gambit, Weka, R.

Teaching Experiences

Department of Computer Science, UTEP   El Paso, USA
Teaching Assistant   *(Jan 17 – May 17)*

- Mentored 110 undergrad students in a multi-cultural environment as a lab instructor for CS2401 Algorithms & Data Structures class.
- Worked with professors to evaluate student performances on lab assignments, quizzes, and exams.

Industry Experiences

Cefalo AS   Dhaka, Bangladesh
Software Engineer   *(Feb 14 – July 14)*

- *Job Crawler*: Developed a website crawler, using Sinatra & Bootstrap, where admin can fetch job postings from external websites and publish them in the client's job site which increased clients profit by 10%–15%.
- Developed a WordPress plugin which helps the external users to post articles in the escenic database.
- Collaborated with client-side developers to solicit and analyze requirements using agile development process.
- *Technologies used in this employment*: HTML5, Sinatra, JQuery, Ruby on Rails, Bootstrap, WordPress, PHP.

KB Group (UK)   Dhaka, Bangladesh
System Analyst & Software Developer   *(Jun 11 – Jan 14)*

- *TEXPrint:* Led a team of 2 developers to build a browser-based ticket printing solution, using Classic ASP, JavaScript, AJAX, and C++, for an e-ticketing system (TEX) to print thousands of physical tickets per day.

- *KB Layout Editor:* Developed a HTML5 layout editor, using JavaScript and AJAX, for designing ticket layouts and email confirmations which could also convert designs into corresponding ticket printer languages or HTML.
- *Canterbury Ticketing System:* Developed online ticket booking website for theaters.
- *TEX:* A back-office e-ticket management project based on ASP classic, Java Script, Ajax, VB Scripts, SQL distributed database where COM+ used for the middle layer api calls. I contributed to this project by adding new features according to the business requirements.
- *KB Print Server:* Maintained and added features to an existing .NET project, which provides TCP/IP support for the network disabled ticket printers, according to business requirements.
- *KB Device Manager and Browser Extensions:* Created a C++ NPAPI plugin to provide TCP/IP handshaking service for web-browsers to print tickets.
- *KB Tex Kiosk:* Developed kiosk ticket printing machine with magtek card swiper.
- *KB Tex Print:* Developed C++ project for requesting and printing tickets via COM+.
- *Print@Home:* Maintained and upgraded a C++ project, built using open source HARU PDF library, to generate digital pdf tickets.
- Improved the efficiency of e-ticketing which increase the ticket sale 10%–20% compared to the previous year.
- *Technologies used in this employment*: HTML5, ASP Classic, AJAX, JavaScript, C++, COM+, VB Script, C#, SQL Server.

Dynamic Solution Innovator Ltd   Dhaka, Bangladesh
Software Engineer   *(Feb 11 – May 11)*

- Upgraded the User Interface of Citrix's WCMS according to requirements using CSS, HTML, J2EE, and JIRA.
- Worked with remote developers and testers to solicit and analyze requirements by daily scrum meetings in a agile development process.
- *Technologies used in this employment*: Java, JavaScript, HTML, CSS.

Publications   Refereed conference papers:

- Moinul Morshed Porag Chowdhury, Christopher Kiekintveld, Son Tran Cao, William Yeoh. *Bidding in Periodic Double Auctions Using Heuristics and Dynamic Monte Carlo Tree Search.* IJCAI, 2018.
- Moinul Morshed Porag Chowdhury, Christopher Kiekintveld, Son Tran Cao, William Yeoh. *Bidding strategy for periodic double auctions using Monte Carlo tree search.* Proceedings of the 17th International Conference on Autonomous Agents and Multiagent Systems. International Foundation for Autonomous Agents and Multiagent Systems, AAMAS, 2018.
- Moinul Morshed Porag Chowdhury, Russell Y. Folk, Ferdinando Fioretto, Christopher Kiekintveld, William Yeoh. *Predicting prices in the Power TAC wholesale energy market.* Thirtieth AAAI Conference on Artificial Intelligence. AAAI, 2016.

Book Chapter:

- Moinul Morshed Porag Chowdhury, Russell Y. Folk, Ferdinando Fioretto, Christopher Kiekintveld, William Yeoh. *Investigation of Learning Strategies for the SPOT Broker in Power TAC.* In Agent-Mediated Electronic Commerce. Designing Trading Strategies and Mechanisms for Electronic Markets, 2017.

Workshop papers:

- Moinul Morshed Porag Chowdhury, Russell Y. Folk, Ferdinando Fioretto, Christopher Kiekintveld, William Yeoh. *Investigation of learning strategies for the spot broker in power tac.* In the International Workshop on Agent Mediated Electronic Commerce and Trading Agents Design and Analysis (AMEC/TADA), 2016.
- Moinul Morshed Porag Chowdhury, Dr. Reaz Ahmed. Proximity-aware ID assignment and routing in Wireless Sensor Network. In *Proceedings of The Workshop on Design and Implementation of Emerging Computing Systems (WECS'13), Dhaka, Bangladesh, September 2013.*

Symposium papers:

- Moinul Morshed Porag Chowdhury, Christopher Kiekintveld, Paras Mandal. *A Green Auction*

Mechanism For Prioritizing Renewable Energy Sources In Energy Markets SETS, 2017
- Moinul Morshed Porag Chowdhury, Jesus Juarez, Christopher Kiekintveld. *Bidding in the Wholesale Energy Market* SETS, 2016

Services
- Reviewer of the Association for the Advancement of Artificial Intelligence (AAAI) [2020, 2019, 2018, 2016, 2015]
- Reviewer of the International Joint Conferences on Artificial Intelligence (IJCAI) [2017, 2015]
- Reviewer of the international joint conference on Autonomous agents and multiagent systems (AAMAS) [2020, 2018, 2015]
- Reviewer of the ACM conference on Economics and Computation (EC) [2018, 2015]

Synergistic Activities
- Attended Dissertation Studio Workshop at UTEP in Fall 2019 and Spring 2020
- 4th place at 2019, 2018 and 2016 Power Trading Agent Competition (www.powertac.org)
- Gave a talk on my paper at IJCAI 2018
- Presented my poster at AAMAS 2018
- Gave a talk on my paper at SETS 2017 and 2016 (http://engineering.utep.edu/sets/)
- Presented my poster at the AAAI 2016
- Mentored an undergraduate student in the summer of 2015 as a part of a Campus Office of Undergraduate Research Initiatives (COURI) program.
- Participated in PowerTAC 2015 for the first time.
- Gave a talk on my paper in the *Workshop on Design and Implementation of Emerging Computing Systems (WECS 2013)*

Awards
- Dissertation Completion Fellowship award for the 2019-2020 academic year
- 3rd place at 2017 Power Trading Agent Competition (www.powertac.org)
- 3rd place out of 50 graduate students at 2015 UTEP Graduate Research Expo
- Tuition fellowship award from the College of Engineering for the 2014-2015 academic year in UTEP
- University Scholarships by BUET for academic excellences at Level 1.
- Board Scholarship by the Ministry of Education, Bangladesh for the results in Higher Secondary Certificate examination, 2005.
- Board Scholarship by the Ministry of Education, Bangladesh for the results in Secondary School Certificate examination, 2003
- Junior Scholarship, awarded by the Ministry of Education, Bangladesh, in 2000

Other Projects
Bows and Arrows Game: A 2D single player shooting game developed in C and C graphics where the player tries to score points by shooting arrows at balloons of various heights, colors, and speeds.

Mail Server : A Java project including a Server which distributes emails with a file attachment option to clients using multi-threading.

Graphics project : Modeling the exterior of Soccer City Football Stadium using OpenGL and C++.

Knowledge and Skills

Programming Languages: Java, C, C++, R, Python, Shell Scripting, C#, Assembly language

Strong background in: Algorithms, Data Structures, Reinforcement Learning, Machine Learning

Database: SQL, MySQL, Oracle, PostgreSQL

Tools: Git, SVN, LaTeX, Maven, Weka, MATLAB, GNU Plot, Maven, Eclipse, STS, LaTeX

Frameworks: DeepLearning4j, Spring, OpenGL, COM+ Services, Keras, PyTorch

Web Development: HTML5, JavaScript, Ajax, JQuery, PHP, Classic ASP, Sinatra, Bootstrap

Software Development Methodologies: Agile, Waterfall, Scrum