MD. ZAHIDUL HASAN

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EDUCATION AND CO-CURRICULAR ACTIVITIES

University of Dhaka Dhaka, Bangladesh
Bachelor of Science, Computer Science and Engineering January 2015 - January 2019
International Mathematical Olympiad 2013 Santa Marta, Colombia
*Received **Honorable Mention*** July 2013
Asian Pacific Mathematical Olympiad 2013 Dhaka Bangladesh
*Received **Bronze Medal*** March 2013
Bangladesh Mathematical Olympiad 2011 Dhaka Bangladesh
*Became the national **champion of the champions*** February 2011
*Secured the **3rd, 4th and 3rd** positions respectively in* 2012, 2013, 2014

Research Interests

Artificial Intelligence , *Machine Learning* , *Reinforcement Learning* , *Deep Learning* , *Representation Learning* *Optimization Theory*

PROFESSIONAL EXPERIENCE

BRAC University Dhaka, Bangladesh
Lecturer September 2019-Present

- Served as a theory-coordinator of various multi-section courses.
- Taught *Advanced Graph Theory* and the course was open to both graduate and undergraduate students.
- Single-handedly launched and developed the course contents and syllabuses of the following new courses: *Advanced Graph Theory, Advanced Algorithms, Graph Theory.*
- Created course materials for a lot of other courses such as *Linear Algebra, Machine Learning* etc.
- Revised the syllabus and augmented new course materials to *Data Structures, Machine Learning* etc.
- Created animated video tutorials for *Data structures* using the Python Manim library developed by Grant Sanderson.

Courses Taught: *CSE422: Artificial Intelligence* *CSE427: Machine Learning* *CSE708: Advanced Graph Theory* *CSE426: Advanced Algorithms* *MAT216: Linear Algebra & Fourier Analysis* *CSE220: Data Structures* *CSE230: Discrete Mathematics* *MAT324: Graph Theory*

Samsung R&D Institute, Bangladesh Dhaka, Bangladesh
Software Engineer I April 2019 - August 2019

- I worked in a team in the Deep Learning sector. I implemented object detection architectures like YOLOv3, RCNN, fast-RCNN and faster-RCNN from scratch using TensorFlow to detect company logos from images.

VOLUNTEERING

Bangladesh Mathematical Olympiad Dhaka, Bangladesh
Trainer and Mentor March 2015 - Present
BRAC University Competitive Programming Community Dhaka, Bangladesh
Trainer and Coach August 2022 - Present
International Mathematical Olympiad 2021 Saint Petersburg, Russia
Observer A July 2021

- I hosted the virtual 62nd IMO in Bangladesh locally due to the mass lockdown during the Covid-19 pandemic.

COMPETITIVE PROGRAMMING CONTESTS AND HACKATHONS

4th position among 120 teams in North South University Inter University Programming Contest 2016
5th position among 98 teams in MBSTU Inter University Programming Contest 2016
6th and 11th position among 117 teams in IUT ICT FEST 2017, 2016
7th position among 150 teams in CUET Inter University Programming Contest 2017
12th position among 161 teams in SUST Inter University Programming Contest 2016
19th and 26th position among 150 teams in ACM ICPC Dhaka Regional Contest respectively in 2017, 2016

NOTABLE PROJECTS

Mathematical Animations For Data Structures 2020

- Learnt the Python Manim Library developed by Grant Sanderson and created video lectures for Data Structures in the semester of Summer 2020. The playlist can be found here and the codes can be found here.

Bengali Spell Checker and Named Entity Recognizer 2017

- Created an online context-insensitive Bengali spell checker that uses Levenshtein distance and Burkhard-Keller tree to continuously learn better spellings of words and designed a named entity recognizer using Hidden Markov Models to predict parts of speeches within a sentence with 81 percent accuracy.

PetWorld 2017

- Designed and implemented a retail shop website along with a social media portal for selling pet and pet products using Django, Javascript and AJAX.

Archery 2015

- Implemented a single player two level archery game using Borland Graphics Interface where targets and birds show up arbitrarily and the user has to shoot them. The trajectory of the arrow is a parabola.

RESEARCH EXPERIENCE

Undergraduate Thesis January 2018 - December 2018

Title: *Expert User Identifying and Ranking in Question Answering Communities*

- We used the cosine similarity of the bags of words of a user's answers and corresponding questions to determine a user's relevance score. Then we used PageRank, HITS and SALSA algorithms to calculate the authority scores of a user and compared them. Then, we regularized the scores with a hyperparameter.

TECHNICAL SKILLS

Languages and Tools: C/C++, Python, Javascript, SQL, LaTeX
Frameworks and Libraries: TensorFlow, PyTorch, Keras, Django, Scikit-Learn, NLTK
Problem Solving: https://leetcode.com/zadid_hasan/ [Solved more than 600 medium and hard algorithmic and data structure intensive problems]