





Dr. Rajkrishna Mondal

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OBJECTIVE

To be honest towards my work and to achieve a position in industry and research world to utilize my skills and abilities in a renowned organization that allows me to expand upon my knowledge and skills by contributing in the best way and offers security and growth while being resourceful, innovative, and flexible.

AREA OF INTEREST (SPECIALIZATION)

- Artificial Intelligence
- Generative AI, Agentic AI
- Natural Language Processing
- Prompt Engineering
- Data Science
- Big Data
- Soft Computing
- Mathematical Modeling
- Design and Development of Algorithms

EDUCATIONAL PROFILE

- Doctor of Philosophy** Motilal Nehru National Institute of Technology Allahabad
Mathematics August-2022
 - Topic of Research: “A study on Design and Development of Soft Computing Diagnostic information system in Medical Science”
- Master of Science** Motilal Nehru National Institute of Technology Allahabad
Mathematics and Scientific Computing, CPI: 7.62 June-2016
 - Project Title: “On Perspectives and Application of Fuzzy Initial Value Problems”
- Bachelor of Science** Calcutta University
Mathematics Honours, Marks obtained: 61.25% July-2014

4. **Higher Secondary**
Class XII, Marks obtained: 79.40%

Contai Model Institution, WBCHSE
May-2009

5. **Madhyamik**
Class X, Marks obtained: 79.75%

Majilapore Birendra Vidyapith, WBBSE
May-2007

WORK EXPERIENCE

Data Scientist (Project Lead Developer)

Infinity Analytics Pvt. Ltd., Mumbai
26 September, 2021- Present

Lead design, development, and deployment of an AI-powered cognitive search engine that transforms data interaction through advanced NLP, large language models (LLMs), and agent-based workflows.

Technical Overview

Technical Vision & Architecture:

- Define and implement system architecture integrating LLMs, NLP modules, and agent-based processes.
- Design core modules: Natural language query processing, document ingestion, entity extraction, and automated SQL generation using LangChain and LangGraph.

Team Leadership & Project Management:

- Mentor a multi-disciplinary team of developers, data scientists, and engineers.
- Manage timelines, coordinate cross-functional teams, and mitigate risks to meet milestones within budget and time.

Development & Integration:

- Integrate AI components (LLMs like OpenAI, Ollama; vector stores like Chroma; agent frameworks) into a cohesive platform.
- Build pipelines for processing unstructured data using document loaders, text splitters, and memory management.
- Automate tasks such as converting natural language queries to SQL, generating visualizations, and interfacing with APIs (FastAPI).

Quality Assurance & Deployment:

- Enforce coding standards via code reviews and rigorous testing.
- Oversee CI/CD pipelines for scalable, secure deployments while ensuring data security and compliance.

Stakeholder Communication:

- Act as the technical liaison, translating complex AI concepts into actionable business insights.
- Prepare documentation, reports, and presentations for stakeholders.

Impact

- **Enhancement of Business Operations:** The AI-powered cognitive search engine improves efficiency, accuracy, and accessibility of data across the organization, leading to substantial business growth, revenue increase, and superior customer engagement.
- **Business Growth:**
 - Facilitates faster and more accurate data retrieval, improving decision-making across all departments.
 - Streamlines internal processes by automating data extraction, reducing manual effort and operational costs.
 - Enhances innovation by enabling employees to focus on strategic initiatives instead of data wrangling.
- **Revenue Growth:**
 - Provides deeper business insights, helping identify new revenue streams and optimizing existing ones.
 - Improves marketing and sales strategies by analyzing customer interactions and preferences.
 - Automates reporting and analytics, reducing time-to-insight and enabling proactive business strategies.
- **Customer Experience & Satisfaction:**
 - Enhances customer service by delivering accurate, AI-driven responses to queries in real-time.
 - Personalizes user experience by leveraging AI to understand and predict customer needs.
 - Reduces response times and increases customer retention by providing relevant information instantly.
- **Competitive Advantage:**
 - Enables intelligent automation, reducing operational costs and improving productivity.
 - Strengthens data-driven decision-making, allowing for more strategic business moves.
 - Enhances user engagement and retention by offering seamless and efficient data accessibility.

By integrating this advanced AI solution, the company gains a competitive advantage through intelligent automation, data-driven decision-making, and improved user engagement, ultimately ensuring long-term success.

TECHNICAL SKILLS




- **Operating Platform :** Linux; MacOS; Windows
- **Programming Language :** C, C++, Python, R, mySQL
- **Other Software/Tools :** Scikit-Learn, Numpy, Pandas, Statsmodels, Seaborn, Plotly, Matplotlib, TensorFlow, Keras, Spacy, NLTK, MATLAB, Excel, Tableau, Power BI, PySpark, PyTorch, LangChain, LangGraph, CrewAI, Llama Index, OpenAI
- **Database/Server:** My SQL, SQL Server
- **Typeset Software :** L^AT_EX, Microsoft Word

LICENSES & CERTIFICATIONS

- **Complete SQL Mastery** (<https://codewithmosh.com/p/complete-sql-mastery>)
- **Machine Learning A-Z™: Hands-On Python & R In Data Science**
(<https://www.udemy.com/course/machinelearning/>)
- **Deep Learning Specialization :**
 - **Neural Networks and Deep Learning** by DeepLearning.AI on *Coursera*
(Certificate: <https://coursera.org/share/9198bf9e5641668612752b5cd17be8a2>)
 - **Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization** by DeepLearning.AI on *Coursera*
(Certificate: <https://coursera.org/share/def05c9d5e90c88e02398c19677d6bfc>)
 - **Sequence Models** by DeepLearning.AI on *Coursera*
(Certificate: <https://coursera.org/share/9db5dc52cfdba73e6bd6cdd756d19839>)
- **Deep Neural Networks with PyTorch** by IBM Skills Network on *Coursera*
(Certificate: <https://coursera.org/share/93538b50a9cefdb14804a6a08efdd10c>)
- **Natural Language Processing Specialization :**
 - **Natural Language Processing with Sequence Models** by DeepLearning.AI on *Coursera*
(Certificate: <https://coursera.org/share/9a37b3c58962cc01cdc6c628acd96168>)
 - **Natural Language Processing with Attention Models** by DeepLearning.AI on *Coursera*
(Certificate: <https://coursera.org/share/1bf5c53cb5d028ddd77c80dec86affbf>)
- **Big Data Specialization :**
 - **Introduction to Big Data** by University of California San Diego on *Coursera*
(Certificate: <https://coursera.org/share/204624b9502b77d2b2c68e43ab3361f6>)
 - **Big Data Modeling and Management Systems** by University of California San Diego on *Coursera*
(Certificate: <https://coursera.org/share/c1447ddbfc6ecf8a79f97fe33b8aa6c2>)
- **Generative AI with Large Language Models** by DeepLearning.AI on *Coursera*
(Certificate: <https://coursera.org/share/5a3a44036e2e0271fc6370f3d9bbcf59>)
- **Short Courses on Generative AI** on *DeepLearning.AI*
 - LangChain for LLM Application Development
 - LangChain Chat with Your Data
 - Finetuning Large Language Models
 - Large Language Models with Semantic Search
 - Building Systems with the ChatGPT API
 - Functions Tools and Agents with LangChain
 - Building and Evaluating Advanced RAG
 - Advanced Retrieval for AI with Chroma
 - Knowledge Graphs for RAG
 - Preprocessing Unstructured Data for LLM Applications
 - Building Agentic RAG with LlamaIndex
 - Building Your Own Database Agent
 - Serverless Agentic Workflows with Amazon Bedrock

- Multi AI Agent Systems with crewAI
- Practical Multi AI Agents and Advanced Use Cases with crewAI
- Reasoning with o1
- Long-Term Agentic Memory with LangGraph

COMPLETED SELF PROJECT

- Design a MATLAB Application using self developed algorithm for diagnosing the various level of a Diabetic Patient with the help of complex life factors. 
- Design a MATLAB Application to assess the Kidney Performances of a Persons who is suffering from Diabetes. 
- Design an Intelligent Diet recommendation MATLAB Application to maintain daily Nutritional Macros (like carbohydrate, protein, fat) percentage without help of a Nutritional Experts. 

ATTEND WORKSHOPS, CONFERENCES & SUMMER PROGRAMS

1. **II International Scientific Internet Conference on
ACTUAL PROBLEMS OF PHYSICAL CULTURE, SPORTS AND HEALTH** 27-28 May, 2021
Jointly Organized by The Bohdan Khmelnytsky National University of Cherkasy
2. **Application of MATLAB in Science and Technology (AMST-2019)** 1-5 April, 2019
Jointly Organized by MNNIT Allahabad and KNIT Sultanpur
3. **National Instructional Workshop on Cryptology** 6-10 Jun, 2018
Organized by MNNIT Allahabad in collaboration with Cryptology Research Society of India
4. **Fuzzy Techniques for Intelligent Decision Making** 11-15 Dec, 2017
Organized by IIT Patna in collaboration with Global Initiative of Academic Networks (GIAN)
5. **Big Data** 7-11 Aug, 2017
Organized by IIT Kanpur in collaboration with Knowledge Incubation for TEQIP
6. **Data Analytics and Machine Learning with R (DAMLR-17)** 29 May -2 Jun, 2017
Organized by the Department of Computer Science & Engineering, MNNIT Allahabad
7. **Application of MATLAB in Science, Technology and Management (AMSTM-2016)** 1-7 Dec, 2016
Organized by MNNIT Allahabad
8. **Role of Mathematical Sciences in Engineering and Technology (RMSET-16)** 19-23 Oct, 2016
organized by the Department of Mathematics, MNNIT Allahabad
9. **Summer Program in Mathematics (SPIM)** 8-26 Jun, 2015
organized by Harish-Chandra Research Institute, Prayagraj

PAPER PRESENTED IN CONFERENCES

1. **24th FAI International Conference on Global Trends of Data Analytics in Business Management, Social Sciences, Medical Sciences and Decision making(24th FAI-ICDBSMD 2021)**
Presented a paper entitled "*Fuzzy Utility Matrix based Intelligent Decision-Making Mathematical model and its application in Diet recommendation system for Metabolic Disorders patient*".
Organized by FATER Academy of India; Institute of Technology, Gopeshwar & UNIFACVEST – University Center, Brazil during 25-27 June, 2021.
2. **International Conference on Computing, Communication, and Intelligent Systems(ICCIS-2021)**
Presented a paper entitled "*QUALIFLEX based ranking system by using Interval Valued Hesitant Fuzzy Set and its application to rank the Diabetic patients*".
IEEE Conference Record 51004; ISBN No.: 978-1-7281-8529-3
Organized by Sharda University, Greater Noida, India during 19-20 February, 2021 .
3. **International Conference on Recent Trends and Innovations in Multidisciplinary Research (ICRTIMR-2020)**
Presented a paper entitled "*Diabetes Diagnostic Intelligent Information System*".
Organized by IEC University, Baddi, H.P., India Jointly organized by Globally Multidisciplinary Research and Education Association (GMREA) during 14 Mar, 2020.
4. **International Conference on Engineering, Mathematical and Computational Intelligence (ICEMCI-2019)**
Presented a paper entitled "*Design and Development of Intelligent Information System using Hesitant Fuzzy Weighting Linguistic Term Sets for Computing with Words*".
Organized by Jabalpur Engineering College, Jabalpur, Madhya Pradesh, India in association with FATER Academy of India and Walchand Engineering College, Sangli, Maharashtra, India during 21 Dec -23 Dec, 2019.
5. **Conference on Modern Analysis and Applications – An International Meet (CMAA -2019)**
(67th Annual Conference of Bharat Ganita Parishad)
Presented a paper entitled "*Intelligent Diet Recommendation System for Metabolic Disorders Patient*".
Organized by The Department of Mathematics and Computer Science, Babu Banarasi Das University, Lucknow 226028 (Uttar Pradesh), India in collaboration with Bharat Ganita Parishad, Lucknow, India during 16 Nov-17 Nov, 2019.
6. **National Conference on Recent Trends in Devices, Circuits and Communication(RTDC²-2019)**
Presented a paper entitled "*A Hesitant Fuzzy based expert system in Human Decision making*".
Organized by Department of Electronics and Communication Engineering, Madan Mohan Malaviya University of Technology, Gorakhpur, UP, India during 15 Apr-16 Apr, 2019.
7. **International Conference on VLSI, Communication and Signal Processing(VCAS 2018)**
Presented a paper entitled "*A Medical diagnostic information system with Computing with Words using Hesitant Fuzzy Sets*".
Organized by ECED MNNIT Allahabad, during 29 Nov-1 Dec, 2018.
8. **International Conference on Recent Trends in Mathematical Sciences (ICRTMS-2018)**
Presented a paper entitled "*Application of Hesitant Fuzzy Set for multi-criteria decision making Soft Computing Model in Diabetes Diagnostics*".
Organized by The Department of Applied Mathematics, Maharaja Bir Bikram University, Tripura, India in collaboration with Tripura Mathematical Society, Tripura, India, during 24-25 Mar, 2018.

PUBLICATIONS

1. **Mondal, R., & Srivastava, P.** (2022). Fuzzy Utility Matrix-Based Intelligent Decision-Making Model and Its Application to Diet Recommendation System for Metabolic Disorder Patients. *International Journal of Fuzzy System Applications (IJFSA)*, 11(1), pp. 1-22. <http://doi.org/10.4018/IJFSA.303563>
2. Srivastava, P & **Mondal, R..** (2021). Design and Development of Intelligent Information System using Hesitant Fuzzy Weighting Linguistic Term Sets for Computing with Words. *Lecture Notes in Networks and Systems (Springer)*, 214(1), 2022, pp. IV, 446, Series ISSN: 2367-3370. <http://doi.org/10.1007/978-981-16-3807-7>.
3. Srivastava, P & **Mondal, R..** (2021). QUALIFLEX based ranking system by using Interval Valued Hesitant Fuzzy Set and its application to rank the Diabetic patients. *2021 International Conference on Computing, Communication, and Intelligent Systems (ICCCIS 2021)*, pp.78-85. <http://doi.org/10.1109/ICCCIS51004.2021.9397179>.(IEEE)
4. **Mondal, R.** & Srivastava, P. (2021). Design and Development of an Intelligent System to Assess Kidney Performances of Persons Suffering from Diabetes. *International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies*, 12(4), 12A4A, 1-14. <http://doi.org/10.14456/ITJEMAST.2021.64>
5. Srivastava, P. & **Mondal, R.** (2020). A Hesitant Fuzzy Envelope Based Expert System in Human Decision Making. *Nepal Journal of Mathematical Sciences*, 2(1), 1-6. ISSN: 2738-9928 (online), 2738-9812 (print). <https://doi.org/10.3126/njmathsci.v2i1.36503>
6. Srivastava, P. & **Mondal, R.** (2020). Diabetes Diagnostic Intelligent Information System. *TEST Engineering & Management*, 82(Jan-Feb 2020), 14455-4467. <http://www.testmagazine.biz/index.php/testmagazine/article/view/3136>
7. **Mondal, R.,** Verma, A. & Gupta, P.K. (2020). A Medical Diagnostic Information System with Computing with Words Using Hesitant Fuzzy Sets. *Advances in VLSI, Communication, and Signal Processing*, pp.971-980 (Springer).https://doi.org/10.1007/978-981-32-9775-3_86.
8. Verma, A., **Mondal, R.,** Gupta, P. & Kumar, Arvind (2018). Neural based energy-efficient stable clustering for multilevel heterogeneous WSNs. *2018 First International Conference on Secure Cyber Computing and Communication (ICSCCC)*, pp.208-212 (IEEE).<https://doi.org/10.1109/ICSCCC.2018.8703353>

AWARDS

- Best Paper Presentation on **International Conference on Recent Trends and Innovations in Multidisciplinary Research (ICRTIMR-2020)** organized by IEC University, Baddi, H.P., India Jointly organized by Globally Multidisciplinary Research and Education Association (GMREA) during 14 Mar, 2020.


ORGANIZED CONFERENCES & WORKSHOPS

1. **IT Advisory Committee Member** of 24th FAI International Conference on Global Trends of Data Analytics in Business Management, Social Sciences, Medical Sciences and Decision making (24th FAI-ICDBSMD 2021) during 25, 26, 27 June 2021.
(<https://www.faterindia.org/24thfai2021>)
2. **IT Advisory Committee Member** of 23rd FAI International Conference 2021 on Emerging Trends & Adaptation of Spirituality in Management, Artificial Intelligence, Education, Health, Tourism, Science & Technology (23rd FAI-ICS 2021) during 19, 20 & 21 February 2021.
(<https://faterindia2020.wixsite.com/23fai>)
3. **IT Advisory Committee Member** of 22nd FAI International Conference on Mathematical, Computational Intelligence and Engineering Approaches to Healthcare, Business and Tourism Analytics 2020 (22nd FAI-ICMCIE 2020) during 20, 21 & 22 December, 2020.
(<https://faterindia2020.wixsite.com/22fai-icmcie2020>)
4. **IT Advisory Committee Member** of India, Ukraine, Brazil & Greater Mekong Subregion International Conference - 2020 (IUBGMS 2020) on Global Challenges and Threats to National Economies Nowadays during 20, 21, 22 November 2020.
(<https://faterindia2020.wixsite.com/iubgms2020>)

TEACHING EXPERIENCE

- Programming Languages Lab (Course Code: MA-5151). M.Sc.(1st Semester). MNNIT Allahabad
- MATHEMATICS II (Course Code: MA-1201). B.Tech.(2nd Semester). MNNIT Allahabad

EXTRA-CURRICULAR ACTIVITIES

- Academic Board Members: **Learnbay** in accreditation with **Woolf University**
(<https://learnbay.woolf.university>)
- Teaching on Youtube  **“Mathematics behind Data Science”**
(<https://www.youtube.com/c/MathematicsbehindDataScience>)
- Founder of **Mathematical ML** (<https://mathematicalml.wixsite.com/mathml>)
- **Share Market Investment**
- IT Advisory Committee member of **FATER Academy of India** (<https://www.faterindia.org/>)
- Website Design, Development and Data maintenance
 - **FATER Academy of India** (<https://www.faterindia.org/>)
 - **FAI Publications** (<https://www.faipublications.com/>)
- Worked as a volunteer in **“Rabin Hood Army”**
- Participated in
 - **ZILLA VIGYAN MANASIKATA-O-MEDHA AVIKSHA** (2006)
 - **TALENT SEARCH TEST ON GEOGRAPHY** (2005)

HOBBIES AND PERSONAL INTEREST

- Drawing Logical Pictures
- Listening Audio Books Summary
- Yoga, Gym, Calisthenics, Travel, Photography and Adventurer Sports

PERSONAL DETAILS

- **Father's Name:** Mr. Ramkrishna Mandal
- **Mother's Name:** Mrs. Jharna Mandal
- **Date of Birth:** 19/04/1992
- **Sex:** Male
- **Linguistic Proficiency:** Bengali, Hindi and English
- **Permanent Address:** Vill-Patharghata, Post- Dakshin Dauki, Police Station- Contai(Junput Coastal), Dist-
Purba Medinipur, West Bengal-721450, India.

DECLARATION

I hereby declare that all the information filled above is very authentic, genuine to the best of my knowledge. I take full responsibility of the authenticity of the above information.

Rajkrishna Mondal

Place: Contai, West Bengal

Date: March 17, 2025