Meghna Biswal

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Education

Indian Institute of Technology, Madras **Sep 2021 – Apr 2025**
Bachelor of Science (BS) in Data Science & Programming *Chennai, India*

Indian Institute of Science Education and Research, Thiruvananthapuram **Aug 2019 – May 2024**
Bachelor of Science - Master of Science (BS-MS) in Physics *Thiruvananthapuram, India*

Projects

IndicTTS Deepfake Challenge | PyTorch | NumpPy **Mar 2025**
- Secured rank 12 out of 201 in the Kaggle competition with a ROC-AUC of 0.99998.
- Designed and optimized deep learning models for AI-generated speech detection across 16 Indian languages..
- Processed and analyzed 33,737 audio samples using Librosa, PyTorch, and NumPy for feature extraction.
- Developed a custom Mel-spectrogram-based dataset to enhance model performance by 10 % .

Multi-User Library Management App | Vue.js | HTML/CSS | SQLite | Restful API **Jan 2024 – Apr 2024**
- Built a library management system with role-based access control for admins and users, managing access for 100+ users.
- Structured an optimized SQLite database with SQLAlchemy ORM, handling 500+ monthly transactions.
- Enhanced query efficiency, reducing request processing time by 30 % and minimizing data retrieval latency.
- Integrated CRUD operation and API endpoints, automating book management for admins and reducing manual workload by 70 %.

Grocery Store Management Application | Flask | RestfulAPI | JWT | SQlite | Flask-Security **May 2023 – Aug 2023**
- Engineered a Flask-based grocery platform with secure authentication and role-based dashboards, handling 100+ daily transactions and improving operational efficiency.
- Improved inventory tracking speed by designing an SQLAlchemy ORM-powered SQLite database, reducing retrieval time by 30 %
- Strengthened security with SHA-256 password hashing and Flask-Login authentication.

Sales Analytics for Business Optimization | Excel | Google Colaboratory **May 2023 – Aug 2023**
- Examined 1,000+ sales records from a pizza restaurant to identify trends, pricing strategies, and cost optimizations.
- Leveraged Pandas, Matplotlib, and Seaborn for EDA, data preprocessing, and visualization, reducing data processing time by 35%
- Proposed pricing adjustments, leading to a projected 5 % revenue increase.

Student Enrollment Prediction using Machine Learning | Scikit-learn | NumPy | Pandas | SciPy **Aug 2022 – Sep 2022**
- Built a classification model utilizing Logistic Regression, Decision Trees, and Random Forest, achieving 75 % accuracy
- Improved model accuracy by 10 % and reduced training time by 25 % through feature engineering and hyperparameter tuning.

Relevant Coursework

- Data Structures & Algorithms, Mathematics & Statistics for Data Science, Python Programming, JAVA, Machine Learning, Business Analytics, Software Methodology, Algorithms Analysis, Database Management, Artificial Intelligence, Systems Programming, Application Development, Big Data Analytics, Cloud Computing Concepts, Distributed Systems, Deep Learning

Technical Skills

Languages: Python | R | HTML/CSS | JavaScript | SQL | Machine Learning
IDE & Developer Tools: VS Code | Google Colaboratory | Jupyter Notebook
Technologies/Frameworks: Linux | GitHub | Postman | NumPy | Pandas | Scikit-learn | Matplotlib | JIRA | Flask | Vue.js
Big Data Tools: Spark Streaming | Google Dataproc | Kafka | Google Pub/Sub
Cloud Platforms: Google Cloud Platform (GCP) | Google Cloud Functions
Data Visualization & Analytics Tools: Power BI | Tableau | Excel

Certifications

- Marketing Management | NPTEL | IIT Kanpur | 2024
- Social Networks | NPTEL | IIT Ropar | 2023
- Natural Language Processing | NPTEL | IIT Kharagpur | 2022

Leadership / Extracurricular

Content Creator **Jan 2021 – Apr 2022**
Parsec (Astronomy Club of IISER-Thiruvananthapuram)
- Created engaging and informative content, reaching 400+ astronomy enthusiasts and boosting engagement by 20 % on club platforms.
- Crafted engaging multimedia content that simplified intricate astronomical concepts, leading to a 10 % increase in audience retention across digital channels.