

Sifatul Anindho

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INTRODUCTION:

I am a senior majoring in Computer Science. My academic and research interests are Machine Learning, Natural Language Processing, and Computer Vision and their applications in various interdisciplinary fields.

EDUCATION:

Michigan State University

GPA: 3.85

BSc. in Computer Science, Jan. 2021 – June 2024

Selected Courses: Intro to Machine Learning, Algorithm Engineering, Database Systems, Web Application Development and Architecture, Computer Systems, Matrix Algebra with Computational Applications, Probability and Statistics in Engineering, Multivariate Calculus

AWARDS:

- **Dean's List Award** – Michigan State University (2023)
- **Global Spartan Scholarship** - Michigan State University (2021)
- **International Tuition Grant** – Michigan State University (2021)
- **Outstanding Cambridge Learner Award** for Top in the World in AS Level Mathematics – University of Cambridge (2018)

SELECTED PROJECTS:

Automatic Speech Recognition Model:

- Implemented a supervised machine learning model to develop an automatic speech recognition system with improved comprehension.
- Converted raw input data from an open-source audio dataset from LibriTTS to log-mel spectrograms using the Fourier Transform to effectively capture the audio signal's frequency content and make the data more suitable for deep learning.
- Trained a CNN/Bi-LSTM ensemble model using Connectionist Temporal Classification (CTC) loss and Adam Optimizer in PyTorch.
- Tested the model and evaluated the model's performance using Levenshtein distance.
- Compared the performance of the self-made model with an off-the-shelf transformer (Whisper AI).

Personalizing the Culinary Experience:

- Developed a Human-Machine Interface for Whirlpool ovens and an accompanying cross platform mobile application using Dart and JavaScript.
- Utilized machine learning models to analyze user interactions and cooking habits.
- Implemented personalized recipe recommendations and cooking settings based on user

preferences.

- Developed a web dashboard for Whirlpool to analyze aggregated user analytics for improving their services using React and Plotly.
- Leveraged MongoDB server for data storage and FastAPI for API calls.
- Fine-tuned BERT, a transformer model from Hugging Face, for generating tailored recommendations

RESEARCH EXPERIENCES:

Research Assistant at Michigan State University – Liu Lab (May 2023 – July 2023)

- Conducted literature reviews and analyzed research findings to form hypotheses regarding the accuracy and efficiency of algorithms for phylogenetic estimation.
- Performed experiments on simulated sequence alignment data using the Jukes-Cantor (JC69) substitution model.
- Analyzed the distribution of errors using various statistical methods and presented conclusions from experiment results.

TEACHING:

Teaching Assistant at Michigan State University – CSE 102: Algorithmic Thinking and Programming (January 2022 – Present)

- Taught a class section of ~30 undergraduate students in an introductory programming course in Python.
- Provided informal lectures and recap of concepts to help students understand fundamental programming concepts.
- Graded programming assignments and contributed to writing problems for assigned projects.

WORK EXPERIENCES:

Web Development Intern at Michigan State University – SLE (April 2022 – October 2022)

- Assisted IT specialist team in writing Web/database applications in HTML, CSS, and JS and managing workflow using Git.
- Updated existing Drupal sites, including color and font changes, broken links, and removing obsolete content.
- Created web forms using Drupal Webforms and SASS for taking catering orders from the Breslin Center and views using Drupal Views to display them.

SELECTED SKILLS:

Programming Languages: Python, C++, MATLAB, R, SQL, Java, JavaScript, HTML/CSS

Frameworks/Libraries: PyTorch/PyTorch Lightning, TensorFlow, Pattern, Keras, NumPy, Pandas, Scikit-Learn, SciPy, Natural Language Toolkit, Flutter, FastAPI, Flask

Other tools: Git, Linux, EfficientNet, MongoDB, Dart, Docker, Hugging Face, Google Cloud SDK, Drupal