Comparative analysis of my projects

1 Sound-Based Assessment of Component Functionality Using Neural Networks

This project aims to evaluate the functionality of mechanical components by analyzing sound patterns using neural networks. By training a model to recognize specific sound signatures, we can predict potential failures or malfunctions in real-time.

1. *T*he impact: This project can significantly reduce maintenance costs and downtime in manufacturing by allowing for early detection of issues before they lead to failures.

2. *T*he consistency: The project is grounded in established acoustic analysis techniques and leverages robust machine learning frameworks, supported by empirical data collected from various mechanical systems.

3. *T*he novelty: Unlike traditional methods that rely on visual inspections or manual testing, this approach utilizes advanced neural networks for sound analysis, providing a non-invasive and efficient solution.

4. *M*y contribution: I will focus on data collection, model training, and validation, ensuring the accuracy and reliability of the neural network's predictions.

5. *T*he project focuses on: The main message is that sound analysis can be a powerful tool for predictive maintenance in industrial settings, enhancing operational efficiency.

2 Interior Design Visualization Through Image Generation

This project explores the use of artificial intelligence to generate realistic images of interior spaces based on user inputs and design preferences. It aims to assist designers and clients in visualizing potential designs before implementation.

1. *T*he impact: This project enhances the design process by providing a clear visual representation of ideas, which can lead to better client satisfaction and more informed design decisions.

2. *T*he consistency: The project builds on existing generative adversarial networks (GANs) and computer vision techniques, validated through various case studies in the field of design and architecture.

3. *T*he novelty: The solution differs from existing design tools by offering real-time image generation based on user-defined parameters, allowing for more interactive and flexible design exploration.

4. *M*y contribution: I will work on developing the algorithm for image generation, focusing on optimizing the model to produce high-quality outputs that meet user specifications.

5. *T*he project focuses on: The main message is that AI can transform the interior design process, making it more accessible and efficient for both designers and clients.

3 News Monitoring for Currency Prediction

This project aims to analyze news articles and social media content to predict currency fluctuations based on public sentiment and emerging trends. By integrating natural language processing (NLP) techniques, we can derive insights that inform trading strategies.

1. *T*he impact: This project provides traders and investors with valuable insights into market trends, potentially leading to more informed trading decisions and improved financial outcomes.

2. *T*he consistency: The approach is based on established NLP methodologies and sentiment analysis frameworks, validated through historical data correlations between news events and currency movements.

3. *T*he novelty: Unlike traditional market analysis methods that rely solely on historical data, this project incorporates real-time sentiment analysis, offering a more dynamic view of market influences.

4. *M*y contribution: I will focus on developing the NLP algorithms for sentiment analysis and integrating them with financial data to enhance prediction accuracy.

5. *T*he project focuses on: The main message is that understanding public sentiment through news monitoring can be a powerful tool for predicting currency movements in a volatile market.

4 Resume

The project *T*he project "Sound-Based Assessment of Component Functionality Using Neural Networks" has the highest priority since it addresses a critical need in indus-

trial maintenance, potentially saving significant costs and enhancing operational efficiency through early detection of mechanical issues.