**Model Summary : Abstract**

**Resume Screening using Next Word Predictor**

**1. Introduction**

Creating a resume screening next-word predictor is similar to smart compose features used in emails, LinkedIn, and code completions, which predict the next word based on previous data in a sentence. While there are numerous datasets available on platforms like Kaggle, such as famous quotes, jokes, idioms, pronouns, and stories, training on these datasets can be time-consuming. To optimize this process, I created a custom dataset that contains sentences specifically from resumes. This approach not only reduces the training time but also ensures a considerable level of accuracy suitable for resume screening applications.

**2. Model Preprocessing**

**2.1)Dataset Conversion for Supervised Learning:**

* Convert sentences into a supervised learning format where the input matches the expected output. This is done by tokenizing words using TensorFlow's tokenizer class.

**2.2)** **Token to Number Conversion Using One-Hot Encoding:**

* Convert tokens into numerical data through one-hot encoding, making it suitable for LSTM model training.

**2.3)** **Zero Padding for Uniform Sentence Size:**

* Apply zero padding to ensure all sequences are of the same length, matching the maximum sentence size in the dataset

**3. Architecture, Strategy, and Evaluation**

* **3.1 Architecture:**
* Embedding Layer: Converts sparse vectors to dense vectors for easier processing.
* LSTM Layer: Handles sequential data, capturing dependencies over long sequences.
* Dense Layer with Softmax Activation: Converts output into one-hot encoded vectors, providing probabilistic predictions.

**3.2)Evaluation:**

* Predicts the next 5 words for each input word in the dataset. If a word is not present, the model predicts the closest possible word.

**Part 4: Performance Improvement and Conclusion**

4.1 Use More Data:

* Increase the dataset size to avoid overfitting and improve generalization.

4.2 Hyperparameter Tuning:

* Adjust parameters like epochs, optimizers, and activation functions to enhance performance.

4.3 Advanced Architectures:

* Implement advanced architectures such as stacked LSTM, bidirectional LSTM, or transformers like BERT for better results. However, the current model provides satisfactory outcomes.

**4. Conclusion**

* Developing a resume screening next-word predictor demonstrates the practical application of machine learning. The approach using embedding layers, LSTM, and dense layers with softmax activation offers a robust framework for word prediction. Future improvements with larger datasets and advanced architectures can further enhance its accuracy and utility, showcasing the potential of tailored models in specific contexts.