Final Report Summary: AI-Driven Narrative Generation for Police Reporting

Introduction:

In any police report, the personal narrative from the on-scene officer is crucial as it provides firsthand details of the incident. However, report writing is time-intensive, consuming about 50% of an officer's duty time which could otherwise be used in active community service. Our project aimed to develop a proof of concept using AI, machine learning, and natural language processing to automatically generate these narratives when provided with data. By integrating this system into a Records Management System (RMS), we sought to enhance report consistency across departments and reduce the officers' administrative burden.

Ethical Considerations:

Initial considerations centered around ethical implications such as accuracy, bias, responsibility, and legal consequences of AI-generated narratives. Concerns were raised about the potential inaccuracies in AI reports and who would be accountable—whether the officer or the AI developers. Additionally, there was a risk of AI perpetuating biases present in training data, which could lead to unjust outcomes. To mitigate these issues, we emphasized the need for transparency and collaboration among AI developers, law enforcement, and policymakers in the development and deployment of AI systems.

Research and Development:

Our research involved exploring current uses of AI in public safety, understanding natural language processing, and identifying potential libraries and models suitable for our project. We selected the SpaCy library and Llama2 and T5 models for their capabilities and compliance with privacy and data protection standards. Challenges included accessing adequate, ethically-scrubbed data and overcoming the AI's lack of context compared to human officers. We utilized JetStream2, a cloud-based computing environment with Nvidia A100 GPUs, to handle the extensive data processing required.

Model Implementation:

Initially, we utilized the T5 model due to its customizability but faced significant challenges in generating accurate narratives. This led us to explore prompt engineering with the Llama2 model, which proved more successful. We developed a structured approach where the AI, acting as an unbiased officer, would generate narratives based on cleaned and structured data. Despite achieving consistency in the narratives, the model's lack of real-time sensory and observational context resulted in occasional inaccuracies.

Code Mapping and Challenges:

The project also intended to include a code mapping system to handle data codes from various agencies, using a Python library that utilized Levenshtein Distance to match known and unknown codes. While we managed to identify correct matches within top scores, the system struggled with similar but distinct codes.

Conclusion:

The proof of concept demonstrated both the potential and the challenges of incorporating AI into the report-writing process for police work. While prompt engineering with Llama2 provided the most viable solution, the project highlighted the ongoing need for careful consideration of ethical, legal, and practical issues. Success in future implementations will depend on sustained cooperation among AI developers, law enforcement, and regulatory bodies to ensure that the technology serves to enhance public safety effectively and ethically.

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