

**TITLE:** Artificial Intelligence & Machine Learning Robotics Engineer / NIST GenAI Student Research Associate

### **Overview**

The National Institute of Standards and Technology (NIST) Information Technology Laboratory is seeking a qualified candidate to provide evaluation software and web development support for the NIST GenAI evaluation series (<https://ai-challenges.nist.gov/genai>). GenAI evaluates AI technologies in various modalities and domains (such as text, voice, image, video, code generation, and forensics). The candidate for this position will work alongside world-class researchers at NIST to advance measurement science through cutting-edge research and evaluations in the field of Generative AI. **U.S. Citizen is Preferred.**

### **Duties**

- Evaluating Agentic AI applications in robotics and drones within the manufacturing sector.
- Analyzing AI-generated content by extracting linguistic, syntactic, semantic, and structural features, and using computational methods to compare LLM judgments with human perception and behavioral responses.
- Engineering prompt pipelines to generate controlled AI-generated content across models and other experimental conditions
- Apply pre/post-processing techniques for adversarial attacks on signals from multiple modalities (Audio, Image, and Text)
- Apply signal analysis methods (information theory, topological data analysis, spectral methods) on high-dimensional representation spaces
- Upgrade, maintain, and develop NIST GenAI software and evaluation pipelines.
- Develop baseline systems to benchmark AI models on synthetic content generation and detection.
- Curate datasets for synthetic content detection, aligned with real-world forensic applications.
- Managing data, such as querying and translating data formats/specifications.

### **Required Skills, Expertise and Qualifications**

- Proficiency in shell scripts (Bash, etc.) and coding (e.g., Python, Java, Java Script, R, C and C++).
- Proficiency in database management (e.g., PostgreSQL, MongoDB).
- Background in robotics engineering or AI evaluations involving LLM as judge, study design, and data analysis
- Real-time code development using a distributed computing environment.
- Experience in applying machine learning and deep learning methods to audio and image processing tasks
- Experience with Computer Vision and Array Signal Processing (adaptive and non-adaptive filtering)
- Experience with open-source and API-based AI models in the domain of synthetic data.
- Experience in statistical analysis methods to test and compare AI models on forensic tasks.
- Experience with signal processing techniques like Cosine, Fourier, and Wavelet transforms for feature extraction of digital and time-series data.
- Experience using GPU-accelerated clusters and CUDA for deploying open-source models.
- Experience using cloud computing (such as Azure and GCP) and integrating cloud-based APIs.
- Mastery of the principles, practices, methods in a specialty of a technical professional field (in science, AI/ML engineering, computer science, robotics engineering, information technology, or mathematics, or related field).

### **Other Desirable Qualifications**

- Previous Experience in a full-stack web developer with tools potentially including using Ruby on Rails: Rails5, Postgres, HTML/CSS, JavaScript
- Experience with Jupyter notebooks, R, Shiny, and interactive plots
- Experience in cross-platform software development (Linux, Mac OS X, Windows)
- Experience/interest in machine learning and AI test and evaluation

Employment Terms: This opportunity is to be an associate researcher in the NIST AI Technology Group for a term of one year, with options to renew. Associate researchers are NOT Federal Employees, but they work aside NIST researchers. Relocation expenses will not be provided.

Salary: \$80,000

How to express interest: U.S. Citizens who meet all the required qualifications and who would be interested in taking this position are invited to express their interest in the position by sending an updated CV to Yooyoung Lee via [yooyoung.lee@nist.gov](mailto:yooyoung.lee@nist.gov).