

# Matthew Thomas Pisano

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**Career Objective:** To create novel research into NLP and artificial intelligence alignment strategies.

**GitHub:** matthew-pisano Many of my open-source projects and contributions.

**Portfolio Website:** matthewpisano.com for a more detailed look at my notable projects and research.

## Skills and Experience:

- **Machine Learning (2 Years):** Transformer models, prompt engineering, RL, NLP, ASR.
- **Software Development (3 Years):** DevOps in a professional, team setting, CI/CD.
- **Python Programming (5 Years):** Professional and research projects, PyTorch, transformers.
- **AWS (4 Years):** Cloudformation, EC2, Lambda, S3.
- **Java Programming (5 Years):** Application and Android development.
- **Web Development (5 Years):** React.js, Node.js, responsive design, DB management.
- **Additional Experience:** C++, SQL, Ethereum and Algorand Networks.
- **Awards and Certifications:** Eagle Scout, SUNY NP Outstanding Graduate, 1<sup>st</sup> place at Mega-Ace.

## Research and Publications:

- **Bergeron: Combating Adversarial Attacks through a Conscience-Based Alignment Framework.** A weak-to-strong generalization framework for alignment. Involves an LLM acting as the “conscience” of a stronger LLM. Submitted to *ARR* 2024. ArXiv: 2312.00029
- **Moral High Ground: A Text-Based Games Benchmark for Moral Evaluation,** under *IBM*. A novel benchmark for evaluating the moral reasoning abilities of LLMs through conversational text-based games.
- **PredictChain: Empowering Collaboration and Data Accessibility for AI in an Algorand Blockchain-based Marketplace.** Research article on the development of *PredictChain*, a decentralized machine learning marketplace. Presented at *ChainScience* 2023. ArXiv: 2307.15168
- **Large Acoustic Modeling for ASR,** under the *RPI AIRC Lab*. Research into improving the performance of modern ASM models by using a variety of techniques such as model fine-tuning and corrector LLMs.

## Higher Education:

- **Rensselaer Polytechnic Institute,** 110 8th St, Troy, NY. (2023-Present) Master’s degree in Computer Science, focus on artificial intelligence alignment and NLP. 4.0 GPA, awarded TA position and scholarship.
- **SUNY New Paltz,** 1 Hawk Dr, New Paltz, NY. (2021-2022) Bachelor’s degree in Computer Science, Minor in Applied Mathematics, and undergraduate research. 4.0 GPA, and Outstanding Graduate honor.

## Work Experience:

- **IBM Research (through RPI),** 1101 Kitchawan Rd, Yorktown Heights, NY: Research extern. (2023) Research into LLM alignment using moral principles through fine-tuning on text-based games.
- **Cyber Guardian Consulting Group,** 63 John St, Kingston, NY: Software Developer. (2020-Present) Extensive use of AWS, custom SaaS solutions, full stack web development, backup and restoration software, development in Python, PowerShell, and Javascript frameworks.
- **Rensselaer Polytechnic Institute,** 110 8th St, Troy, NY: Computer Science Teaching Assistant. (2023-Present) Assist students, grade assignments for the *Principles of Software* and *Data Structures* classes.