Matthew Thomas Pisano

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Research Objective: To create novel alignment strategies for artificially intelligent agents.

GitHub: matthew-pisano, which details 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:

- **Research (3 Years):** Multiple conference acceptances, academic talk invitations, work in research labs.
- **Machine Learning (3 Years):** Transformer models, prompt engineering, RL, NLP, ASR, PyTorch, CUDA.
- **Python Programming (5 Years):** PyTorch, HuggingFace, data analysis, LLM fine-tuning.
- **Software Development (4 Years):** DevOps in a professional, team setting, CI/CD.
- **AWS (4 Years):** Cloudformation, EC2, Lambda, S3.
- **Java Programming (5 Years):** Application and Android development, program analysis.
- **Web Development (5 Years):** React.js, Node.js, responsive design, DB management.
- **Awards and Certifications:** Eagle Scout, SUNY NP outstanding graduate, 1^{st} place at Mega-Ace.

Education:

- **Rensselaer Polytechnic Institute**, 110 8th St, Troy, NY. (*2023-2024*) Master of Science in Computer Science, thesis 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 of Science in Computer Science, Minor in Applied Mathematics, and undergraduate research. 4.0 GPA, and Outstanding Graduate honor.

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. Accepted at the RPI Graduate Research Symposium. Published to *ProQuest*. 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. 1^{st} place global hackathon winner. 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.

Work Experience:

- **IBM Research**, 1101 Kitchawan Rd, Yorktown Heights, NY: Research Extern through RPI. (*2023*) Research into LLM alignment using moral principles through fine-tuning on text-based games.
- **Rensselaer Polytechnic Institute**, 110 8th St, Troy, NY: Computer Science Teaching Assistant. (*2023-2024*) Assist students, grade assignments for the *Principles of Software* and *Data Structures* classes.
- **Cyber Guardian Consulting Group**, 63 John St, Kingston, NY: Software Developer. (*2020-2024*) Extensive use of AWS, custom SaaS solutions, full stack web development, backup and restoration software.