Anthony Baez

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Education

Massachusetts Institute of Technology — Cambridge, MA
Masters of Engineering in Artificial Intelligence and Decision Making — *2024 – Present*

Massachusetts Institute of Technology — Cambridge, MA
Bachelor of Science in Artificial Intelligence and Decision Making — *2021 – 2024*

- **GPA:** 4.8/5.0

Coursework

Machine Learning: Introduction to Machine Learning; Representation, Inference, and Reasoning in AI; Advances in Computer Vision; Quantitative Methods for Natural Language Processing

Programming: Fundamentals of Programming; Introduction to Algorithms

Math: Linear Algebra and Optimization; Optimization Methods; Probability and Random Variables

Research

MIT Research Laboratory of Electronics — Jan 2024 – Present
MEng Researcher — *Cambridge, MA*

- Developing novel method to encode time-series data in LLMs to enable time-series reasoning
- Supervised by Prof. Luca Daniel

MIT Research Laboratory of Electronics — Sept 2023 – Dec 2024
Advanced Undergraduate Researcher — *Cambridge, MA*

- Developed novel projection method for guaranteeing conservation laws in a Physics-Informed Neural Network
- Principal author on paper accepted to Data-driven and Differentiable Simulations, Surrogates, and Solvers Workshop @ NeurIPS 2024
- Supervised by Prof. Luca Daniel

Universitat Pompeu Fabra NLP Research Group — June 2023 – Aug 2023
Undergraduate Researcher — *Barcelona, Spain*

- Supported by MIT International Science and Technology Initiative (MISTI)
- Fine-tuned LLaMA on a lexical simplification task to create LSLlama, a novel and more efficient LLM lexical simplification model
- Principal author on paper accepted to Second Workshop on Text Simplification, Accessibility and Readability @ EMNLP 2024

MIT Lab for Computational Physiology — June 2022 – Aug 2022
Undergraduate Researcher — *Cambridge, MA*

- Applied contrastive learning techniques to different classes of machine learning models to improve detection of cardiac arrhythmia for use in bedside monitors
- Adapted model to different ECG waveform datasets, conducted dataset and error analysis to improve models

Publications

Guaranteeing Conservation Laws in Physics-Informed Neural Networks 2024
***Anthony Baez**, Wang Zhang, Ziwen Ma, Subhro Das, Lam M Nguyen, and Luca Daniel*
Data-driven and Differentiable Simulations, Surrogates, and Solvers Workshop @ NeurIPS 2024

LSLlama: Fine-tuned LLaMA for Lexical Simplification 2023
***Anthony Baez** and Horacio Saggion*
Second Workshop on Text Simplification, Accessibility and Readability @ EMNLP 2023

Experience

DeepAI June 2024 – Aug 2024
Machine Learning Research Intern *San Francisco, CA*

- Created Distributask, a Python package that simplifies managing distributed rendering tasks
- Used Distributask to create a data pipeline to automatically render Blender scenes
- Fine-tuned open source text-to-video model on mixed real-synthetic dataset to improve spatial understanding