**Lewis Arnsten**
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## EDUCATION

**University of Chicago**                                                                                                 Chicago, IL
**B.A. in Computer Science with a Specialization in Machine Learning**                                          June 2023
**B.A. in English Language and Literature**
**GPA:** 3.65/4.00
*Relevant Courses: Mathematical Foundations of Machine Learning, Introduction to Neural Networks, Introduction to Computer Vision*

## SKILLS

**Languages –** Python, JavaScript, Solidity, C, Swift, Haskell
**Frameworks –** PyTorch, SciPy, PIL, Pandas, Numpy, Web3.js, React.js
**Misc. Software –** Git, Unix, Alchemy, Infura, IPFS

## EXPERIENCE

**Latent Culture** [latentculture.com]                                                                          Chicago, IL
**Lead Developer**                                                                                            Feb 2021 – Present

- Worked closely under Jason Salavon at his University of Chicago-based art studio to bring to life TODEM [latentculture.com/todem], a mosaic GIF of unprecedented size (5.8B pixels) created using cutting-edge generative AI and published using the Ethereum ERC-721 standard.
- Directly implemented TODEM's most crucial components. Served as the programming backbone for the project and was the only developer to see it through from its inception to its publication.
- Designed and programmed the TODEM rendering pipeline (Python, PyTorch, PIL): invented a JSON-based metadata standard for filling a canvas of unbounded size with dense, layered content; wrote multiprocessing scripts to efficiently ingest that metadata and render output images across 3 systems and 10 GPUs; researched and implemented generative AI models from Generative Adversarial Networks to Stable Diffusion–focusing on conditional image synthesis.
- Built blockchain infrastructure for TODEM (Solidity): drafted, tested, and oversaw publication of the TODEM contract [contract link], a custom contract that encodes each NFT image's pixel count in its tokenId to be used in the calculation of its mint price; improved gas efficiency by utilizing a Merkle tree to store valid tokenIds; meticulously thought through the contract's mutability and permissions, especially pertaining to its operator filter; created TODEM's metadata.
- Worked extensively on TODEM's frontend site (React, Web3, Infura, Alchemy, Seaport): added all web3 capabilities to the frontend; set up blockchain data queries and calls to the TODEM contract; wrote code to populate information panels with video, text, and pricing data; tested and implemented tile selection and overlay mechanics; built token-gated site components.
- Learned how to effectively talk through ideas and possible implementations, translate ideas into code, communicate productively during development, and consistently move towards a finished product.

**New York Stem Cell Foundation**                                                                          New York, NY
**Automation Engineering Intern**                                                                     June 2017 – June 2019

- Spent 3 consecutive summers programming methods, modules, and workflows for pipetting robots.
- Integrated machine learning and computer vision algorithms into procedures for quality control.
- Learned to create a dataset, to train an ML model, and the importance of attention to detail.