

# Maxwell Jones

PhD Candidate

Machine Learning Department  
Carnegie Mellon University

website: [maxwelljon.es](http://maxwelljon.es)  
mjones2 [at] andrew [dot] cmu [dot] edu

## Education

---

### Carnegie Mellon University

Machine Learning Department, PhD. Advisors: Jun-Yan Zhu and Ruslan Salakhutdinov	2024 - Present
Machine Learning Department, MS (GPA: 3.93/4.3)	2023-2024
B.S Artificial Intelligence (GPA: 4.0/4.0)	2019-2023
B.S Discrete Math and Logic (GPA: 4.0/4.0)	2019-2023

### Thomas Jefferson High School for Science and Technology

High School Diploma 2019 (GPA: 4.1/5.0)	2015-2019
---	-----------

## Publications

---

- **Maxwell Jones**, Rameen Abdal, Or Patashnik, Ruslan Salakhutdinov, Sergey Tulyakov, Jun-Yan Zhu, Kuan-Chieh Jackson Wang. *Tuning-free Visual Effect Transfer across Videos* . Arxiv 2026. [\[Paper\]](#) [\[Project Page\]](#).
- **Maxwell Jones**, Sheng-Yu Wang, Nupur Kumari, David Bau, and Jun-Yan Zhu. *Customizing Text-to-Image Models with a Single Image Pair* . SIGGRAPH Asia 2024. [\[Paper\]](#) [\[Project Page\]](#) [\[Code\]](#).
- Dravyansh Sharma, and **Maxwell Jones**. *Efficiently learning the graph for semi-supervised learning* . UAI 2023. [\[Paper\]](#) [\[Code\]](#).
- Melissa Hall, Laurens Van der Maaten, Laura Gustafson, **Maxwell Jones**, and Aaron Adcock . *A systematic study of bias amplification* . CVPR TSRML Workshop 2022. [\[Paper\]](#) [\[Code\]](#).

## Work Experience

---

### Meta FAIR Labs

Summer 2022

Software Engineer Intern, Research Team

- Co-authored paper to benchmark algorithmic Bias Amplification of models from biased datasets
- Developed scripts to run custom config files using both bash and python
- Managed project tasks for myself and lead weekly meetings
- See third publication for results

### Meta Probability and Uncertainty Team

Summer 2021

Software Engineer Intern, Research Team

- Developed data perturbation training/evaluating/testing pipeline using python, pytorch
- Tested probabilistic models including Bayesian, Ensemble, and Dropout with LeNet-5 architecture
- Evaluated models on perturbed image data (Random Cropping, Rotation, Jittering)

### Fiat Chrysler Automobiles

Summer 2020

Software Engineer Intern

- Worked on amount of absentee workers prediction model across production plants
- Improved model performance by using Random Forests and XGBoost
- Cross referenced crew data across plants for more robust/generalized inference
- Significant increase in model accuracy for absentee worker prediction at all plants (2% increase, 5000+ employees)

## Teaching/Involvement

---

- Teaching Assistant, 10423/623/723 Generative AI Fall 2025
- Member, AI Curriculum Review Committee Fall 2024
- Teaching Assistant, 10703 Deep Reinforcement Learning Fall 2024
- Teaching Assistant, 15-251, Great Ideas in Theoretical Computer Science Spring 2023
- Head Teaching Assistant, 15-151/21-128 Mathematical Foundations for Computer Science Fall 2023
- Teaching Assistant, High School AI Scholars Program @ CMU Summer 2023
- Judge, WWP Hacks 2022 (HS hackathon, \$5000+ in prizes) Spring 2023
- Head Teaching Assistant, 15-151/21-128 Mathematical Foundations for Computer Science Fall 2022
- Teaching Assistant, 15-251, Great Ideas in Theoretical Computer Science Spring 2022

- Head Teaching Assistant, 15-151/21-128 Mathematical Foundations for Computer Science Fall 2021
- Teaching Assistant, 15-251, Great Ideas in Theoretical Computer Science Spring 2021
- Teaching Assistant, 15-151/21-128 Mathematical Foundations for Computer Science Fall 2020

## Awards/Honors

---

- CMU Machine Learning Department TA of the year (2024-2025 school year)
- ULSAC (University Leadership Student Advisory Council) 2023-2025
- CMU Rales Fellowship (~80k/yr, 2 yrs) 2024-Present
- Siebel Scholarship (35k) Spring 2024
- CMU Mark Stehlík Introductory and Service Teaching Award ([statement](#)) Spring 2023
- CMU Phi Beta Kappa Honor Society Fall 2023

## Projects

---

- **QFormer Implementation** Fall 2025
  - Implemented [MetaQueries](#) from scratch to be given in [Generative AI](#) course as a HW
  - Connected GPT-2 embeddings with pretrained diffusion model on Cifar10 to create toy setting for students
  - Helped create homework end to end, from ideation to implementation to writeup and handout
  - Optimized training to work with extremely limited student compute
- **Decision Transformer and Action Diffusion Implementation** Fall 2024
  - Implemented [Decision Transformer](#) and [Diffusion Policy](#) from scratch to be given in [deep reinforcement learning](#) class as a HW (see Teaching Fall 2024).
  - Able to match performance of expert trajectories on openAI gym environment collected using a trained PPO model
  - Wrote the code, homework writeup, solutions, template, rubric, and exam questions pertaining to new HW material
- **Story Generation** ([project link](#)) Spring 2024
  - Generate stories on team of 4 (new story captions and corresponding images) from a single initial story caption/image
  - Generate separate story captions for story and conditioning captions to be used for text-to-image model (novel idea)
  - Finetuned Stable Diffusion for image generation and llava model for caption generation using LoRA (Low Rank Adapters)
  - Improved performance over baselines with same task
- **Solving Graph Problems with Diffusion** ([project link](#)) Spring 2024
  - Use Graph Neural Networks and Diffusion to solve graph problems like MST (minimum spanning tree) quickly on team of 3
  - Using Kruskals algorithm with ordering from our predicted edges, we find less cycles when computing the MST
- **Cozmo Depth Map** ([codebase](#)) ([slides](#)) Spring 2023
  - On team of 2, programmed a robot to use MiDaS, a relative monocular depth estimation model on camera input with 8 GB GPU
  - Given real world sparse depth from aruco markers, calculate optimal scaling factor for relative depth map
  - Allow users to query any pixel on screen and output real world depth estimate
- **MIT Battlecode!** ([full overview](#))
  - Created Java software on team of 4, for AI bot to compete against other teams in month-long MIT lead tournament, competed for 3 years
  - Leveraged distributed communication algorithms and pathfinding to increase bot's effectiveness
  - Implemented bit packing methods, Priority Queues and Stacks, and K-Means Clustering to improve performance
  - Placed top 10 out of 250 teams internationally (2021, 2022, 2023), 1st out of all first-time teams(2021), \$2000+ in prize winnings

## Coursework/Skills

---

<b>Coursework:</b>	<b>Languages:</b>	<b>Tools/Frameworks:</b>
11-777 Multimodal ML	Python	Pytorch
10-708 Probabilistic Graphical Models	Java	NumPy
10-703 Deep Reinforcement Learning	C	SciPy
10-725 Convex Optimization	Javascript	Unix Command Line
36-700 Statistics	HTML/CSS	Git
15-485 Intro to Deep Learning	LaTeX	Sklearn
16-385 Computer Vision	SQL	Keras
10-315 Intro to Machine Learning	Julia	Pandas
15-210 Parallel Algorithms		Jupyter Notebook
15-213 Computer Systems		regex
21-484 Graph Theory		Matplotlib
21-301 Combinatorics		OpenCV
		Slurm
		bash script