Maxime Kawawa-Beaudan

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Education

M.S. Electrical Engineering and Computer Science — Aug. 2021 - May 2022
University of California, Berkeley — Berkeley, CA

- Research Area: Computer Vision and Artificial Intelligence
- Thesis: Hierarchical Reinforcement Learning for Robotic Locomotion from Vision

B.A. Computer Science, Minor in Creative Writing — Aug. 2017 - Dec. 2020
University of California, Berkeley — Berkeley, CA

- **Honors: Magna Cum Laude; GPA: 3.9/4.0**
- Coursework: Machine Learning, AI, Probability Theory, Efficient Algorithms, Convex Optimization, Robotics, Computer Architecture, Data Structures, Linear Algebra

Professional Experience

J.P. Morgan Artificial Intelligence Research — New York, NY
Senior Research Associate — Starting Jun. 2022

- Computer vision and reinforcement learning in industry.

Berkeley Artificial Intelligence Research — Berkeley, CA
Graduate Researcher — Apr. 2020 - Present

- Graduate student in the Video and Image Processing Lab, advised by Professor Avideh Zakhor. Currently investigating:
  1. Autonomous robotic navigation.
     - Designing six-legged robots to perform construction tasks in inaccessible spaces. Reinforcement learning for both goal-driven navigation and low-level gait control.
- Previously worked on:
  1. Automatic detection of skin cancer.
     - Building deep-learning based approaches for segmentation of invasive melanoma. Collaborating with UCSF pathology for expert data annotation.
  2. Image compression for vision tasks.
     - Leader of research team designing neural-network based compression systems to jointly optimize for recognition, distortion, and compression losses. Project owner, contributing 98% of lines of code in repository.
     - First author on paper accepted for oral presentation at conference. Author on grant proposal for up to $150,000 in funding (Sony Focused Research Award).

J.P. Morgan — New York, NY
Summer Analyst – Fixed Income Research — Jun. 2021 - Aug. 2021

- Designed AI models to predict relevant market movements from sparse datasets for the U.S. Rates Strategy team (Corporate and Investment Bank).
- Contributed to, copy-edited and laid out mid-week, end-of-week, and daily publications for institutional clients and internal partners.
- Automated data collection and aggregation methods, producing higher resolution insights for researchers and improving data accessibility.

Salesforce, Inc. — San Francisco, CA
Software Developer Intern — Jun. 2019 - Aug. 2019

- Researched scalable anomaly detection algorithms with the data science team for Salesforce's AI group, Einstein.
- Developed a novel approach for streaming data to identify actionable irregularities; used Scala and Spark on AWS clusters. Proposed method helped team launch the Messaging Insights feature, used by thousands of marketers worldwide.

Publications and Talks

Recognition-Aware Learned Image Compression — Comp. Img. 2022
Maxime Kawawa-Beaudan, Ryan Roggenkemper, Avideh Zakhor

- We jointly learn compression and recognition networks to optimize a rate-distortion loss alongside a task-specific loss. We achieve as much as 26% higher recognition accuracy at equivalent bitrates compared to state-of-the-art traditional compression methods. Preprint.

Projects

bobROSS, EECS C106A — Oct. 2020 - Dec. 2020

Final project for upper-division robotics: Bots Overcoming Boundaries (with) ROS Support.

- Shared robotic simulation space in augmented reality. Project website here.

Suture Thread Tracking System, AUTOLab — Feb. 2019

Initial research experience with DaVinci surgical robots in BAIR's Automation Lab.

- System to segment and model thin surgical threads in images of robotic workspace.

Activities

Published Author, (Self-Directed) — Aug. 2014 - Present

- Published the short story "Waiting for Fireworks" in *Glimmer Train* literary journal (publishes 40 stories out of 40,000+ submissions per year) as first place contest winner. Published the accompanying essay "A Constitution for a Young Artist" in the same issue (Fall 2018).
- Finalist in the National YoungArts Foundation talent contest (2017). Studied in master classes from renowned authors. Awarded a $3,000 merit-based grant to fund further work.
- Finalist in *New Millenium Writings* Writing Awards 42 (2016).

Peer Tutor, CS 370 — Aug. 2018 - Dec. 2018

One-on-one instructor with Berkeley pedagogy course, Intro. to Teaching Computer Science.

- Taught 20+ students enrolled in CS61A (computer programs) and CS61B (data structures).

Skills

Languages: Python, Java, Scala, C; **Platforms:** AWS, Google Cloud; **Frameworks:** Apache Spark, PyTorch, ROS, OpenAI Gym; **Tools:** NumPy, Pandas, OpenCV, matplotlib, Jupyter notebooks, Unix; **Natural Languages:** English (native), French (fluent)