Chinmay Purushottam

1303 Wilmot St., Ann Arbor, MI-48104 | linkedin.com/in/chinmay-purushottam | chinzo@umich.edu | +1 (650) 787-5315

EDUCATION

University of Michigan <div align="right">Ann Arbor, MI</div>

B.S. in Computer Science & Cognitive Science. GPA: 3.5/4.0 <div align="right">*Expected May 2025*</div>

<u>Relevant Coursework</u>: Machine Learning, Computer Vision, Web Systems, Database Management Systems, Computer Networks, Systems Programming, Data Structures & Algorithms, Computational Linguistics, Artificial Intelligence

EXPERIENCE

Computer Vision Co-op Engineer <div align="right">Boston, MA</div>

AirWorks Solutions, Inc. <div align="right">*May 2024 – Jul 2024*</div>

- Conducted street-level object detection on over **30GB** of Telecommunication pole panoramas.
- Extracted metadata like pixel exposure, GPS tags, RGB channel statistics using **PIL**, **cv2**, and **pandas**.
- Developed scripts to split panoramas into flattened series of images via inverse affine and homography matrices. Grayscaled and downsampled for memory efficiency. Annotated images on **Label Studio** via **Docker** container.
- Merged public and private COCO training datasets, increasing object instances from **291 to 16,525**. Trained dataset on Detectron2 model on an L4 GPU for **270,000** iterations, achieving **92%** accuracy.
- Trained the merged dataset on NVIDIA's ODTK model using rotated bounding boxes, achieving **78%** accuracy.

Computer Vision Engineer Intern <div align="right">Boston, MA</div>

AirWorks Solutions, Inc. <div align="right">*May 2023 – Jul 2023*</div>

- Evaluated the DOTA model for its use in aerial object detection, achieving **84%** accuracy vs "ground truth".
- Mobilized cloud-based **AWS EC2** instances to test and make inferences on demonstration data on Tesla V100 GPUs. Improved drone image processing **run time by 4%** by hyperparameter tuning like random search.
- Optimized and upgraded the model's **image tiling algorithm by 2%** on large drone imagery (5000 X 5000 pixels or greater) using strategies like adaptive tiling, tile size optimization, and overlap reduction.
- Integrated **OpenCV, MMCV, TorchVision, and PyTorch** ML frameworks to train and test data.

LEADERSHIP

Project Lead - Reinforcement Learning Curriculum <div align="right">Ann Arbor, MI</div>

Michigan Student Artificial Intelligence Lab (MSAIL) <div align="right">*Dec 2023 – Present*</div>

- **Taught 15+** students to use fundamental python libraries like numpy, pandas, matplotlib, **Gymnasium, and Scikit-learn** on Google Colab. Explored **Neural Networks**, Deep-Q Learning, & Hyperparameter tuning.
- Organized club events and guided students to develop RL gaming projects like Lunar Lander & Atari.

PERSONAL PROJECTS

Smart Calendar | *Python, Streamlit, Google Calendar API, Canvasapi, OAuth, CSS, HTML* <div align="right">Jan 2024 – Apr 2024</div>

- Developed a task management app for students with ADHD to streamline personal and academic scheduling.
- Implemented automatic event creation, **Google calendar** synchronization, **CanvasAPI** integration for assignments, **auto-place** event feature, and a **customizable UI** to improve user interaction and accessibility.

Search Engine | *Java, MapReduce, REST API, Git* <div align="right">Sep 2023 – Dec 2023</div>

- Computed **inverted index of web pages** using a MapReduce pipeline.
- Built an index server, ran a REST API app using Git returning search results in JSON format.
- Developed **GUI** and ranked searches calculated per **TF-IDF and PageRank** scores.

Social Media Clone | *JavaScript, React, RestAPI, Python, HTML, CSS, Jinja, Cypress* <div align="right">Aug 2023 – Nov 2023</div>

- Built an Instagram clone using dynamically rendered client-side pages.
- Implemented authentication and real-time features, supporting concurrent usage by **1000+ simulated users**.
- Conducted comprehensive testing using Cypress, **achieving 95% test coverage**.

TECHNICAL SKILLS AND INTERESTS

Languages: Python, C/C++, HTML/CSS, SQL, Java, JavaScript
Developer Tools: Git/Github, Bitbucket, Jira, Docker, React, TensorFlow, Jupyter Notebook, AWS, ArcGIS
Libraries: PyTorch, OpenCV, TorchVision, Pillow, Scikit-learn, pandas, NumPy, Matplotlib, Streamlit
Hobbies: Manga & Anime, Amateur Snooker & Pool, Soccer, Tennis, Weight Lifting