

# Amani Kiruga

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• [amanikiruga.github.io](https://amanikiruga.github.io) • Newark, DE

## EDUCATION

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University of Delaware | B.S in Computer Science

2020 - 2024

- **Cumulative GPA:** 3.94/4.0 (Top 5% in college) | **Major GPA:** 4.0/4.0
- **Selected Coursework:** Machine Learning, Computer Vision, Calculus, Linear Algebra, Probability Theory, Computational Mathematics, Parallel Computing, Algorithms, Data Structures, Data Science
- **Bachelor Thesis:** “Modelling 3D Causal Processes from 2D Vision Data: Challenges and Solutions”
- **Languages:** Python, C++, C, Java, JavaScript, TypeScript, HTML, CSS
- **Frameworks/Libraries:** Pytorch, OpenCV, NumPy, Pandas, Scikit-Learn, Node.js, React.js

## EXPERIENCE

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MIT Computer Science and Artificial Intelligence Laboratory (CSAIL)

Sep. 2023 - Current

Student Researcher | Scene Representation Group, Cambridge, MA

- Worked with Prof. Vincent Sitzmann and Prof. Ayush Tewari on unsupervised learning
- Developed a method for out-of-domain generalization for single-image 3d reconstruction

MIT Media Lab

June 2023 - Sep. 2023

Student Researcher | Viral Communications Group, Cambridge, MA

- Worked with Dr. Andrew Lippman on content analysis
- Designed and built an [interactive portal](#) to analyze media sources with LLMs using **Next.js** and **MongoDB**

University of Delaware

Jan. 2024 - May 2024

Student Researcher | Dynamic Vision Lab, Newark, DE

- Worked with Prof. Christopher Rasmussen on video action recognition and pose detection
- Benchmarked LLM performance, trained ResNet and DINO baselines using **PyTorch**

University of Delaware

Sep. 2021 - Current

Fullstack Software Engineer | PAROT Group, Newark, DE

- Designed and built two releases of the National Science Foundation (NSF) funded [Atom research portal](#) that provides the scientific community with accessible atomic data, used **React**, **Node.js**, **Next.js**, and **PostgreSQL**

## RESEARCH PRESENTATIONS & PUBLICATIONS

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Robust Monocular 3D Reconstruction by Integrating Feed-forward Inference and Analysis-by-Synthesis

[A. Kiruga](#), M. Hamilton, JB. Tenenbaum, WT. Freeman, V. Sitzmann, A. Tewari

To be submitted to ICML 2025

Infant Video Interaction Recognition using Monocular Depth Estimation

C. Rasmussen, [A. Kiruga](#), J. Orlando and M. Lobo

Poster, International Symposium on Visual Computing (ISVC) 2024 (Oral)

Poster, American Physical Therapy Association Combined Section Meeting (CSM) 2024

Non-Hierarchical Transformers for Pedestrian Segmentation

[A. Kiruga](#), X. Peng

Poster, Computer Vision and Pattern Recognition Conference Workshop (CVPRW) 2023

A Portal for High-Precision Atomic Data and Computation: Design and Best Practices

P. Barakshan, A. Bhosale, [A. Kiruga](#), R. Eigenmann, M. Safronova, B. Arora (2022)

arXiv. <https://doi.org/10.48550/arXiv.2212.10665>

Combined poster, Supercomputing (SC) 2024

Human Falls in The Wild: A Video Dataset of Human Falls and Recoveries in the Free-Living Environment

Z. Jia, [A. Kiruga](#), X. Peng

Poster, University of Delaware Undergraduate Research Summer Symposium 2022

[A. Kiruga](#), M. Baksh, K. Barner (2021) Near Real-time Deep Group Profiling in Crowded Scenes

Poster, University of Delaware Undergraduate Research Summer Symposium 2021

## HONORS & AWARDS

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**Eugene du Pont Memorial Scholarship** (1 of 30,000) 2020 - 2024

**Outstanding Senior Student Award** (1 of 150) 2024

**Engineering Alumni Association Scholarship** (3 of 600) 2023-2024

**Outstanding Sophomore Student/Paul D. Amer Meritorious Award** (2 of 150) 2022

**Rees Carl J & Eleanor K Mathematics Scholarship** (10 of 200) 2022

**Dean's List** 2021, 2022, 2023, 2024

**MIT Summer Research Program Scholar** June 2023 - Sep. 2023

**Google CS Research Mentorship Program Scholar** Jan. 2022 - April 2022

## LEADERSHIP & SERVICE

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**Founder** Feb. 2022 - Sep. 2024

University of Delaware, Competitive Programming Club | Newark, DE

- Founded the [UD Competitive programming club](#) on campus and grew club to 100+ members
- Organized weekly presentations and competitions to spread competitive programming knowledge
- Received **bronze medal** in the [Mid-Atlantic regional 2021 International Collegiate Programming Contest](#)

**Teaching Assistant** Sep. 2021 - May 2023

Microsoft Philanthropies TEALS, Trenton Central High School | Trenton, NJ

- Assisted in the running of a class of 16 students in an AP Computer Science A classroom
- Supported students to learn content related to **Java** by holding one-on-one help sessions and giving presentations

## PROJECTS

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[EmojiGAN](#) Jan. 2022

- Used PyTorch to train a Deep Convolutional Generative Adversarial Network (DCGAN) on an emoji dataset I created and released as open-source containing more than 4000 pictures
- Tested for GAN memorization using a K-Nearest Neighbor search