

Rupa Kurinchi-Vendhan

Computer Vision Researcher for Climate and Conservation

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https://rupakv.com

in rupakurinchi-vendhan

RupaKurinchiVendhan

Education

B.S. in Computer Science

The California Institute of Technology

September 2020 – Present

- Major: Computer Science
- Studied abroad opportunity at the University of Cambridge, St. Catharine's College for Michaelmas Term 2022-23
- Relevant Courses: Software Design, Computing Systems, Functional Programming, Machine Learning & Data Mining, Decidability & Tractability, Algorithms, Vision and Large Language Models, Advanced Topics in Machine Learning
- GPA: 4.2/4.0

Experience

Coral Gardeners - Mult-Label Benthic Classification for Reef Restoration

Computer Vision Intern

March 2023 – Present

- Developing a semantic segmentation network which takes processed aerial drone imagery as input and classifies benthic cover. This will inform where to target restoration efforts.
- Awarded the Caltech Y's ACT Award and the Samuel P. and Frances Krown Fellowship for conducting impactful research.

Apple - Atlas Packing for Volumetric Rendering

Technology Investigation Intern

June 2022 – September 2022

- Within the Technology Development Group (TDG), designed and implemented an algorithm for texture/bin packing which reduces image atlas size by 20%.
- Codebase integrated with existing scene rendering pipeline for the recently released Apple Vision Pro.

NASA - Estimating D.C. Solar Potential

DEVELOP National Program Intern

September 2021 – November 2021

Partnered with the Washington DC Department of Energy & Environment (DOEE) and use LiDAR digital surface models to create Solar Potential Maps at a 1-ft resolution to inform solar panel installations for neighboring communities of DC.

Netlab - WiSoSuper

Research Fellow

June 2021 – September 2021

- Paper accepted and presented at NeurIPS CCAI Tackling Climate Change with Machine Learning 2021 Workshop
- Modified and identified novel deep learning-based super-resolution models, and applied them to satellite data to achieve 5x super-resolution of wind speeds and solar irradiance fields for informing short-term, local energy planning.
- Published modules for benchmarking assessment and spatial analysis for wind and solar data fields.

Skills

Python

Java

C

C++

Objective C

JavaScript

React

MySQL

GIS

Programs & Projects

Species Distribution Modelling

December 2021 – Present

Using GeoCLEF Life 2020 and iNaturalist data to train and evaluate a multi-label learning neural network on only presence data and spatiotemporal priors.

Climate Hack.AI

March 2022

Designed neural network that improves the temporal resolution of satellite imagery by 2x to improve scheduling for electrical grids.

Hacktech

April 2021 & 2022

- Used React and JavaScript to develop the mobile application, Terra, for tracking and setting goals to reduce the user's carbon footprint.
- Achieved over 90% accuracy with a neural network (ForestFireNet) when predicting wildfires in Australia from environmental factors. Awarded a finalist title.

Caltech Y – President

June 2023 – Present

- Create programs to encourage campus members to make meaningful connections and participate in community service.
- As a Board Member, make executive decisions regarding funding, organization, and mission statements.

EarthDNA – Lead Ambassador

February 2021 – December 2022

- Created a community service organization which consults for sustainable projects around the globe.
- Hosted campus talks by climate justice organizations such as Greenpeace.