

# Rupa Kurinchi-Vendhan

## Aspiring Software Engineer for Sustainability and Social Good

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in rupakurinchi-vendhan

RupaKurinchiVendhan

## Education

B.S. in Computer Science

**The California Institute of Technology**

September 2020 – Present   Pasadena, California

- GPA: 4.2/4.0
- Awarded one-term study abroad opportunity at the University of Cambridge, St. Catharine's College
- Related Courses: Introduction to Programming Methods, Introduction to Software Design, Introduction to Discrete Mathematics, Introduction to Computing Systems, Introduction to Functional Programming, Learning Systems, Machine Learning & Data Mining, Decidability & Tractability, Algorithms

## Experience

Apple - Atlas Packing for Volumetric Rendering

**Technology Investigation Intern**

June 2022 – September 2022

- Within the Technology Development Group (TDG), designed and implemented an improved algorithm for texture/bin packing in Python which reduces atlas size by 20%.
- Codebase will be integrated with existing rendering pipeline to lessen power demands for video playback in AR/VR applications.

NASA - Estimating D.C. Solar Potential

**DEVELOP National Program Intern**

September 2021 – November 2021

- Partnered with the Washington DC Department of Energy & Environment (DOEE) to create Solar Potential Maps to inform solar panel installations for neighboring communities of DC.
- Drew data from LiDAR-derived digital surface models and satellite images to calculate average annual solar potential at a 1-ft resolution. Used GIS tools and Python for data visualization, processing, and analysis.

Netlab - WiSoSuper

**Research Fellow**

June 2021 – September 2021

- Modified and identified novel deep learning-based super-resolution models (implemented in PyTorch), 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 and presented at NeurIPS CCAI Tackling Climate Change with Machine Learning 2021 Workshop.

## Skills

Python

Java

C

C++

Objective C

JavaScript

React

GIS

MySQL

## 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 predicts the next two hours of satellite imagery from one hour of prior data 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.

Battery Modelling

February 2021 – June 2021

Built upon Netlab's Adaptive Charging Network (framework for electric vehicle charging) to more accurately predict an individual's power consumption when scheduling energy loads.

Navajo Nation Solar Nanofiltration

June 2021 – August 2021

With Engineers Without Borders, created simulations of solar panel power outputs to determine the parameters for failure of the solar nanofiltration system that supplies the clean water to the Navajo Nation.

Doodle Jump 3

May 2021 – June 2021

Developed a woodlands-themed platforming video game in C, with a physics engine that creates conditions for gravity, collisions, and a magnetic force and a customized UI/UX.