

AAYUSH KUMAR

{a} aayush-k.tech

github.com/aayush-k
aayush.kumar@gatech.edu
linkedin.com/in/aayush-k
(408) 859-6810
San Jose, CA - U.S. Citizen

EDUCATION



GEORGIA INSTITUTE OF TECHNOLOGY

B.S. in Computer Science: Intelligence & HCI Threads - 3.83 GPA

ATLANTA, GA • GRADUATING DEC 2018

EXPERIENCE



YAHOO: TRIPOD PROJECT

Tripod Engineering Intern

SAN FRANCISCO, CA • MAY 2017 - AUG 2017

Yahoo's platform for commoditized photo & video storage, serving, enrichment, aggregation, & search

- **Improved image search parsing accuracy** by implementing search metrics & analyzing query processing algorithm
- **Built Tripod Map/Image Viewer UI** in React.js to visualize EXIF-metadata/geodata for individual users



SMART CITY INFRASTRUCTURE

Computer Vision Engineer

ATLANTA, GA • AUG 2017 - DEC 2017

Working under Dr. James Tsai & Dr. Tony Yezzi to develop city infrastructure monitoring/diagnosis with modern technologies

- **Developing vehicle detection, categorization & tracking** system to gather data about traffic flow/behavior patterns
- **Using YOLO Real-time object system** backed by Tensorflow implementation of darknet & trained on Udacity's Autti dataset



PROJECT RESURGENS

AHNA AI/IOT Developer

ATLANTA, GA • MAY 2016 - AUG 2017

Georgia Tech's Smart Solar Home & Internet of Things project emphasizing self-sustenance/net zero energy/carbon footprint

- **Training a classification model of electricity consumption** using outlet reading data to optimize energy consumption
- **Building cross-platform React Native App** that helps users track electricity & water savings/consumption over time



ITRANS

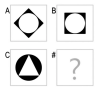
Android Developer

ATLANTA, GA • JAN 2016 - MAY 2016

Faculty research on optimizing campus transportation systems & developing a forecasting, computation, & communication system to improve bus circulation

- **Implemented automated announcements** of bus stops with realtime broadcasts of route changes, upcoming cancellations & weather forecasts with Android TextToSpeech engine

PROJECTS



RAVEN'S MATRIX SOLVER

Knowledge-Based AI Project

AUG 2017 - DEC 2017

Built a Python Agent to solve Raven's Progressive Matrices, a credible measure of intelligence via visual analogies

- **Built Semantic Networks** to capture knowledge representation using Numpy adjacency matrices & object oriented design
- **Leveraged Generate & Test** methodology to determine affine image transformations & recognize complex visual patterns



FRAMEHUNT

1st at HackGT (185 submissions)

OCT 2017 - PRESENT

The Ctrl-F for Videos: A tool that helps users quickly search & skip to parts of a video based on visual content

- **Integrated on Clarifai API** & optimized video processing & search indexing for faster, more helpful searches
- **Built data flow, state management & oversaw design** of ReactJS WebApp backed by Amazon EC2 server & ExpressJS



SCENE RECOGNITION

Computer Vision Project

OCT 2017 - DEC 2017

Explored Deep Learning and Bag of Words + SVM approaches to Scene Recognition task (accuracy measured with test set)

- **Designed Deep Neural Network** from scratch (54% accuracy) & fine-tuned the pre-trained VGG-F deep network (89% accuracy)
- **Trained 15 one-vs-all Linear SVMs** fed with Bag of SIFT features (66.1% accuracy) & k nearest neighbors (42.3% accuracy)



FACE DETECTION

Computer Vision Project

NOV 2017

Trained a classifier to detect faces using a sliding window classification, inspired by Dalal & Triggs 2005

- **Built HOG Descriptions** (Histogram of Oriented Gradients) of positive & negative examples in Caltech Web Faces dataset
- **Leveraged Hard Negative Mining** to boost classifier accuracy & augmented positive example data with horizontally mirrored faces

SKILLS

LANGUAGES

- Java
- Python
- JavaScript
- Matlab
- HTML/SASS/CSS
- Ruby on Rails

LIBRARIES

- SKLearn/Tensorflow
- OpenCV/PIL
- ReactJS/React Native
- Redux/ImmutableJS
- LeafletJS
- Android SDK

DEV TOOLS

- Jira Issue Tracking
- Designs/Mockups (Sketch)
- Splunk
- Git/GitHub Workflow
- Linux/RHL (SSH)
- Enterprise Slack/Hipchat

RELEVANT COURSES

- Natural Language Processing
- Knowledge-Based AI
- Computer Vision
- Intro to AI
- Robotics & Perception
- Algorithm Design/Analysis
- Info Visualization
- User Interface Design

AWARDS

ACADEMIC

- **Faculty Honors** 4.0 GPA in Fall 2015 & Spring 2016
- **Dean's List** maintain a GPA average of 3.0 or above

SPEECH & DEBATE

- **2nd** Cal Berkeley National Invitational (117 entries)
- **1st** University of Pacific Jon Schamber Invitational
- **VP of Speech** Facilitated administrative tasks for Leland Speech & Debate Team of 300+ students