

# AAYUSH KUMAR

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## EDUCATION



GEORGIA INSTITUTE OF TECHNOLOGY

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

ATLANTA, GA • GRADUATING MAY 2019

## 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



DEPENDENCY PARSING

**Natural Language Jupyter Notebooks**

MAR 2018 - APR 2018

Created a deep transition dependency parser in PyTorch with 93.6% (English) and 94.8% (Norwegian) dev accuracies

- **Built arc-standard transition-based dependency parser** using various methods of computing word embeddings
- **Implemented neural network components** for choosing actions and combining stack elements



FRAMEHUNT

**1st at HackGT 2017 (185 submissions)**

OCT 2017

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

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



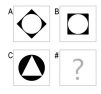
SCENE RECOGNITION

**Computer Vision MATLAB Project**

OCT 2017 - DEC 2017

Explored Deep Learning & Bag of Words/SVM approaches to Scene Recognition task - accuracies 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)



RAVEN'S MATRIX SOLVER

**Knowledge-Based AI Python Project**

AUG 2017 - DEC 2017

Built an Agent to solve Raven's Progressive Matrices, visual analogies to assess IQ, with 83.7% train & 65.9% test accuracies

- **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

## SKILLS

### LANGUAGES

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

### LIBRARIES

- PyTorch
- Tensorflow
- SKLearn/OpenCV
- ReactJS/React Native
- 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