RAGHAV RAJ MITTAL

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EDUCATION

Georgia Institute of Technology, Atlanta, GA — Jan 2019 – May 2020
Master of Science in Computer Science (Machine Learning) — **GPA: 4.0/4.0**

Georgia Institute of Technology, Atlanta, GA — Aug 2015 – Dec 2018
Bachelor of Science in Computer Science (Artificial Intelligence & Information-Internetworks) — **GPA: 3.8/4.0**

Universitat Politècnica de Catalunya, Barcelona, Spain — May 2017 – Jul 2017
Computer Science Study Abroad — **GPA: 4.0/4.0**

RESEARCH and TEACHING

Computational Perception Laboratory — **Atlanta, GA**
Graduate Researcher | Prof. James Rehg — Jan 2019 – Present

- Designing supervised machine learning models to improve an RFID-guided multi-camera surveillance and tracking system to help animal behavior researchers infer a target animal's social group structure and social behavior
- Proposing an end-to-end learning-based approach that corrects for camera lens distortions and noisy sensors
- Experimenting with models that directly map target locations to the correct pan and tilt angles of a PTZ camera, such that when the camera is rotated, the target animal appears at the center of the frame
- Automating parts of the data collection process by leveraging the existing geometry-based tracking system to follow target animals, and training new object detection models to retrieve their locations in the image

College of Computing — **Atlanta, GA**
Teaching Assistant — Aug 2018 – Present

- TA - Intro to Artificial Intelligence, Spring 2020
- Head TA - Intro to Robotics and Perception, Fall 2019
- TA - Intro to Robotics and Perception, Spring 2019
- TA - Intro to Robotics and Perception, Fall 2018

Computer Science Tutor — Sep 2017 – May 2018

- Conducted weekly 1-to-1 tutoring sessions on Data Structures, Algorithms, Systems, Networks, Python, and C

Center for Academic Enrichment
Team Leader (GT1000 First Year Seminar – Diversity, Inclusion, Social Justice) — Aug 2016 – Dec 2016

- Acted as an upper-class mentor for first-year students and offered advice, support and making their transition from high school to college easier

WORK EXPERIENCE

Bloomberg LP — **New York City, NY**
Software Engineering Intern — May 2019 – Jul 2019

- Built a new Bloomberg Terminal function for the Access Control team to interface with the internal process orchestration engine, easily diagnose the latest privileging requests, and quickly debug failed workflows
- Created the application service in Python, UI screens in JavaScript, and new DB using an internal SQL wrapper

Goldman Sachs — **Dallas, TX**
Summer Technology Analyst — Jun 2018 – Aug 2018

- Worked in an Agile environment to create a persistence service that allows agents to store customer information quickly and securely
- Used the Java Spring framework to create RESTful service APIs, MongoDB to store the encrypted notes, and React-Redux to create the front-end components and make Ajax calls to the service

ZenParent **Bangalore, India**
Summer Technology Intern May 2016 – Jun 2016

- Analyzed content performance and decay rate in the acquisition of new users for each piece of content
- Used Python and Google Analytics as part of a flagship project to make marketing at the company more data driven

SELECTED PROJECTS

Follow-Focus

- Used OpenCV body detection and Grove Arduino modules to rotate a GoPro camera and follow a dancer's movement so that they are always in the frame (info)

Magic Palette

- Combined object detection, gesture recognition, and expression classification modules so that one can create digital art by moving around a brush in the air, change colors by holding up different fingers, and save/delete the painting by altering their expression (info)

ExpressMusic

- Built a web-app that uses OpenCV to identify people and play songs according to their facial expressions (demo)

Pet Swap

- Devised a new machine learning approach to match images of dogs with cats (and vice versa) based on their fur/skin colors and patterns by clustering their texture representations and finding the nearest neighbor (info)

Stranger Danger

- Trained a face recognition model and built a hardware contraption to propel balls at intruders (info)

Everybody Dance Now

- Implementation of Chan et. al, ICCV 19 (info, demo)

STS Studio – Speculative design

- Critical analysis of biased machine learning systems and their consequences on society (info)

Obstacle-Avoidance Car

- 3D printed and wood-crafted a battery-powered car that uses an ultra-sonic sensor to avoid obstacles (info)

AWARDS and ACHIEVEMENTS

- Faculty Honors and Dean's List in every semester during undergraduate studies
- Best Hack and UPS API prize – Make a Difference Hackathon, Atlanta
- Best Hardware Hack – Get a Move On Hackathon, Atlanta
- 1st place – Goldman Sachs Engineering Intern Challenge, North America Region
- 1 of 13 high school students selected on academic merit for a sponsored study abroad at the Tel Aviv University

SKILLS

Languages: Python, Java, C, SQL, JavaScript
Frameworks: TensorFlow, PyTorch, OpenCV, Scikit-Image, Scikit-Learn, Numpy, Pandas
Version Control: Git, Subversion
Mobile Applications: Android

SELECTED COURSEWORK

Computer Vision, Deep Learning, Artificial Intelligence, Machine Learning, Robotics and Perception, Natural Language Processing, Databases, UI Design, Algorithms, Systems & Networks, Automata, Complexity, Game Theory, Science and Technology Studies (STS), Ethics