# RISHI MASAND

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#### **EDUCATION**

### University of Illinois at Urbana-Champaign

Masters in Computer Science, B.S. in Computer Science, Minor in Business

May 2021, May 2020

Relevant Coursework: Applied Machine Learning, Distributed Systems, Artificial Intelligence, Computer Security, Autonomous Vehicles, Learning-Based Robotics, NLP with Deep Learning

### RESEARCH

UIUC FORWARD Lab December 2019 - Present

- Performing NLP (Natural Language Processing) and data mining research with Professor Kevin Chang.
- · Measuring quality of phrases based on traditional and custom quality metrics while leveraging NLTK and stanford-core-nlp.
- · Extracting high-quality domain-specific phrases from text corpora using word embeddings (Word2Vec).

UIUC SRTI Lab February 2020 - Present

· Implementing CNN to classify vehicles from a custom-generated dataset of images, using PyTorch.

# Autonomous Driving (GEM Illinois Lab & CS 598 MAV)

January 2020 - Present

- · Deployed and tested brake-on-pedestrian-detection implementation on AutonomouStuff Polaris GEM vehicle.
- · Performed pedestrian trajectory estimation using YOLOv3, SORT, scikit-learn, and OpenPose.
- · Leveraged ROS and Gazebo to validate motion-planning and perception algorithms.

### **EXPERIENCE**

Uptake May - August 2020

Software Engineering Intern

 $Chicago,\ IL$ 

- · Worked on AI/ML team's data science engine to engineer natural language processing workflows.
- · Developed Label Creation Workflow to assign categories to unlabeled work order records.
  - $\cdot$  Designed and implemented algorithm to vectorize and cluster text records for label generation.
  - · Leveraged scikit-learn, pandas, dask, scipy, numpy, and plotly in workflow implementation.

# Uber Technologies Inc.

May - August 2019

Software Engineering Intern

San Francisco, CA

- · Implemented machine learning model and training pipeline to predict driver earnings for a driving session.
  - · Leveraged Michelangelo to select and train model, tune model hyperparameters, and analyze dataset features.
  - · Enabled scheduled automation for HIVE table querying, Spark dataset aggregation, and model training.
  - · Deployed Random Forest model available for real-time prediction querying.
- · Designed and implemented caching layer for driver earnings opportunity data platform.
  - $\cdot$  Developed custom caching logic in Go and leveraged Redis as a high speed key-value data store.
  - · Implemented extendable, persistent configuration for upstream data providers to specify caching options.
  - · Configured alerting and set up monitoring dashboard to track cache metrics.
  - · Achieved cache hit rate of >95% and decreased presentation service data querying latency by 75%.

**State Farm**Software Engineering Intern

January - May 2019

Champaign, IL

- Developed journey mapping web application in AngularJS for agents to track timelines of customer processes.
- · Designed and implemented REST API in Go and configured PostgreSQL database for application backend.

Caterpillar Inc.
Cyber Security Intern

May - August 2018

East Peoria, IL

- · Participated in cloud-based threat modeling and penetration testing to evaluate robustness of software architectures.
- · Specified set of technical controls and security suggestions for embedded Linux hardening.

Capital One

January - May 2018

Software Engineering Intern

Champaign, IL

- · Automated malware execution response data collection for Windows system with Python, Cuckoo sandbox, and syslog.
- · Generated labeled dataset of system response data for machine learning driven attack prevention.

Software Engineering Intern

July - August 2017

Weehawken, NJ

- · Developed machine learning models to classify fraudulent credit card transactions using Python and R.
- · Used k-NN classifier developed from scratch, Tensorflow neural network classifier, and scikit-learn decision tree classifier.

### TECHNICAL SKILLS

Proficient In Have Experience With Technologies Python, C++, Java, Swift, Golang, C, JavaScript, HTML, CSS

Kotlin, C, SQL, Objective-C, Assembly (MPASM, MIPS, x86), PowerShell, Ruby, Thrift PyTorch, Tensorflow, Keras, OpenCV, ROS, Gazebo, Spark, HIVE, AWS, MongoDB, Unity Node.js, Express, jQuery, AngularJS, React, Raspberry Pi, Arduino, Alexa Skills, IDA Pro

# UIUC CS 461 (Computer Security)

January 2020 - Present Course Staff Urbana, IL

- · Educational Topics: Application Security, Web Security, Cryptography, Network Security, and Forensics
- · Hold office hours.

Systems - iOS Lead

· Write and grade exam questions.

**HackIllinois** 

August 2018 - February 2019

Urbana, IL

· Lead team of student engineers developing iOS app for HackIllinois event attendees.

# UIUC CS 126 (Software Design Studio)

January 2018 - December 2018

Course Staff

Urbana, IL

- · Educational Topics: Programming Style, Documentation, Testing, Debugging, Modular Design, and Design Patterns
- · Lead office hours for assistance with Java and C++.
- · Moderated student code review sessions for discussion of student software application implementations.
- · Evaluated, critiqued, and graded student software application implementations.

## Illini Motorsports (Formula SAE)

August 2017 - May 2018

Engineering Project Lead

Urbana, IL

- · Developed system in C to auto-upshift gears of vehicle to decrease shift times in competition acceleration event.
- · Interacted with CAN Bus to analyze RPM, wheel speed, and other parameters to determine time to shift.

### NOTABLE PROJECTS

### **UIUC Bus**

- · Developed native iOS, watchOS, and Android applications to track bus departures and timings for the UIUC campus.
- · Shipped apps to App Store and Google Play Store.
- $\cdot$  Received >15,000 total downloads.
- · Relied on daily by thousands of UIUC students to navigate campus and surrounding area via the CUMTD bus service.

## billboard-top-100

- · Developed Node.js API (NPM package) to retrieve the top songs, albums, and artists from Billboard's music charts.
- · Leveraged TravisCI to implement continuous integration pipeline to test functionality, check code style, calculate test code coverage, and publish package to NPM registry.
- · Downloaded over 25,000 times and depended upon by at least 80 public GitHub repositories.
- · Collaborate with open source developers to identify and resolve issues to maintain package functionality.

### carKeyz

- · Designed and implemented custom wireless locking/unlocking and remote start circuit for 1997 Honda CR-V.
- · Developed iOS application to interface with in-car circuit over Bluetooth.

### uiuc-food

- · Scraped and processed data from various sources to build dataset of eateries in the Champaign-Urbana, IL area.
- · Developed and publicly deployed dataset visualization with D3.js to display eatery information.

More projects at: https://github.com/darthbatman

### NOTABLE AWARDS

1st Place February 2020 Pulse Hardware Hackathon Urbana, IL

· Project: PalmReader - a wearable device that converts detected text to tactile Braille.

**Grand Prize** September 2017 PYGHackChampaign, IL

· Project: SpreadBread - an app to connect local food banks to restaurants and grocery stores with extra food.

1st Place April 2017 HackRUPiscataway, NJ

· Project: carKeyz - a smartphone controlled lock/unlock system for my 1997 Honda CR-V.

More awards at: https://devpost.com/DarthAnakin