

# Anand Sunderrajan

✉ [anand299sunder@gmail.com](mailto:anand299sunder@gmail.com) – [in LinkedIn/AnandSunderrajan](https://www.linkedin.com/in/AnandSunderrajan) – [Github/AnandSunderrajan](https://github.com/AnandSunderrajan)  
🌐 [AnandSunderrajan.github.io](https://AnandSunderrajan.github.io) — [k Kaggle/AnandSunderrajan](https://www.kaggle.com/AnandSunderrajan)

## Technical Skills

---

**Programming Languages** — Assembly (LC3, x86), C, C++, C for CUDA, HTML/CSS, Node-Red, Python, SystemVerilog, SQL  
**Tools/Frameworks** — Adobe Suite, AWS, EAGLE, Git, Google Cloud (GCP), JetBrains Suite, Jupyter, Keras, KiCad, LaTeX, Linux, Microsoft Office Suite, NLTK, PyTorch, Quartus, sklearn (scikit-learn), TensorFlow  
**Human Languages** — English (Fluent), Hindi (Fluent), Spanish (Basic)

## 🎓 Education

---

**Udacity** **June 2021 - Present**  
*AWS Machine Learning Foundations*  
**University of Illinois Urbana Champaign** **August 2017 - June 2021**  
*Bachelor of Science in Computer Engineering*

## 📁 Experience

---

**University of Illinois Urbana-Champaign** **January 2021 – June 2021**  
*Teaching Assistant – ECE445 (Senior Design)*  
Lead and managed multiple project teams through the engineering design process – including design review, testing, demonstration, and professional documentation of each step. Created and presented course lectures. Coordinated 400+ students alongside course staff for technical and design assistance. Liaised with company representatives for sponsored projects.

**University of Illinois Urbana-Champaign** **August 2020 – June 2021**  
*Teaching Assistant - ECE385 (Digital System Design)*  
Guide students in laboratory experiments involving FPGA design (over 250 students each semester). Conduct office hours for students to resolve their queries; test and debug their designs; and further their understanding of digital systems design.

**Hendrick House** **May 2018 - June 2019**  
*Receptionist* September 2018 - June 2019  
*Resident Advisor* May 2018 - September 2018  
Collaborated with a team of 6 Resident Advisors to establish a united leadership team to oversee over 1600 residents of varying age groups. Addressed resident issues and concerns in a professional and timely manner. Maintained a database of services used by residents and sold to visitors. Created accurate and detailed reports for each shift.

**International School of Havana** **October 2016 - May 2017**  
*Software Development and Infrastructure Intern*  
Created a program to maintain a database for over 700 students and assist in data management for various categories for each student. Assisted in the implementation of the IT infrastructure (~\$45,000) for the new campus built on Calle 21.

**UNICEF - Havana, Cuba** **May 2016 - September 2016**  
*Software Development Intern*  
Developed a program for maintaining an expense database. Allowed user to efficiently parse through 8 funding accounts locally on their machine and visualize 11 different expense categories.

## 🔧 Projects

---

**Automated Trading Bot**  
*Python, Pandas, PyTorch, NLTK, scikit-learn (sklearn), Google Cloud Platform (GCP), Polygon, PRAW, Stocktwits*  
Algorithmic trading bot in Python that conducts financial and sentiment analysis for tickers on high traffic subreddits and stock tweets using APIs (Polygon, PRAW, Stocktwits). The custom multi-model pipeline achieved an alpha of 2.58 (compared to the SP500) with a beta of 0.73, providing an average annual return of approximately 15.05% through back testing with data since 2003 compared to the ~10.1% provided by the SP500. Testing with actual funds in a brokerage account since Jan 2020 has resulted in a portfolio value increase of ~1360%.

**Event Attendance Tracker – Team 13 (Fall 2020)** [View Project](#)  
*C, Java, EAGLE, KiCad, Soldering, PCB Design*  
Project for ECE 445, the capstone course for the ECE department at UIUC. Created a custom-designed PCB containing an ESP-32 micro-controller programmed in C, and created an android application in Java to develop a comprehensive system that tracks event attendees at a booth. Developed a custom distance determining algorithm that achieves an accuracy of 99.04% in determining the booths attended, a >35% increase over tested alternatives.

## Pipelined LC3-b Microprocessor

[View Project](#)

System Verilog, FPGA Development, Quartus Prime, LaTeX

A pipelined version of the LC3-B Microprocessor with features such as cache, branch prediction etc. Pipelined version built as a final project for ECE385 (Digital Systems Laboratory) with additional features added subsequently.

## Object Detection System

[View Project](#)

Python, TensorFlow, NumPy, Pandas

An object detection and classification pipeline built in Python using TensorFlow. The model is trained using the Fashion-MNIST dataset, built using two separate frameworks - Keras and Low-Level APIs, achieving an accuracy of 92% and 89.7% respectively.

## Awards

### Dean's List

2020

Grainger College of Engineering, University of Illinois Urbana-Champaign.

### T.E.A.M University Challenge (Portfolio Management)

Fall 2020

1st - University of Illinois Urbana-Champaign. 11th - Nationwide.

### Best Engineered Design and Project

Fall 2020

ECE 445 (Senior Design), University of Illinois Urbana-Champaign.

### Overwatch Collegiate Cup

Spring 2021

Illini Esports, 8th out of 512 teams.

### Overwatch TESPACollegiate Tournament

Fall 2020

Illini Esports, 14th out of 1022 teams.

### Overwatch Collegiate Esports National Championship

Spring 2021

Illini Esports, 5th out of 16 teams.

## Kaggle Competitions

### Google Brain - Ventilator Pressure Prediction

[View Competition](#)

Bronze Medal Finish. Ranked 221/2605. Feature engineering alongside an LSTM model utilizing MAE loss to develop a method for controlling mechanical ventilators on sedated patient lungs.

### Optiver Realized Volatility Challenge

[View Competition](#)

Ongoing competition. Current rank 180/3305. Feature engineering alongside a multi-model pipeline (using XGBoost, LGBM and NNs) to predict short-term future volatility of hundreds of stocks across different sectors.

### CommonLit Readability Prize

[View Competition](#)

Ranked 365/3633 (~Top 10% finish). Created a multi model pipeline (using RoBERTa, XLNet, ALBERT, and more, alongside a custom loss function) to rate the complexity of reading passages for grade 3-12.

### SIIM-FISABIO-RSNA COVID-19 Detection

[View Competition](#)

Ranked 190/1305 (~Top 14% finish). Ensemble of YOLOv5 and Efficient-net to identify/localize COVID-19 abnormalities on chest radiographs.

## Related Coursework

### CS225: Introduction to Data Structures and Algorithms with C++

Grade: A-

Software Development and Infrastructure Intern

### ECE385: Digital Systems Laboratory

Grade: A

Experience designing and building digital systems using transistor-transistor logic, SystemVerilog, and field-programmable gate arrays.

### ECE408: Applied Parallel Programming

Grade: A-

Experience with programming a massively parallel GPU system using CUDA, and with CUDA based convolutional networks.

### ECE445: Senior Design

Grade: A+

Experience with project management, collaboration, and circuit design. Experience creating android apps and PCBs.

### CS498DL: Deep Learning

Grade: A+

Experience with linear classifiers, multi-layer neural networks, computer vision and reinforcement learning

### ECE498ICC: IoT and Cognitive Computing

Grade: B+

Experience with CNN creation using Keras and Low-Level APIs. Experience using Node-RED, GPUs, Edge devices, Cloud devices.