Anand Sunderrajan

✉ anand299sunder@gmail.com – 🔗 LinkedIn/AnandSunderrajan – ⬡ Github/AnandSunderrajan

🌐 AnandSunderrajan.github.io — k Kaggle/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 **July 2021 - December 2021**
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.
- Assessed project documentation and presentations. Created and presented lectures. Coordinated over 400 students alongside course staff for technical and design assistance.
- Conducted weekly meetings with teams to assess progress, and resolve issues.

University of Illinois Urbana-Champaign **August 2020 – June 2021**
Teaching Assistant - ECE385 (Digital System Design)
- Guided students in laboratory experiments involving FPGA design (over 250 students each semester).
- Conducted office hours for students to resolve their queries; test and debug their designs; and further their understanding of digital system 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 various age groups and address resident issues and concerns in a professional and timely manner.
- Maintained a database of services used and sold to visitors.

International School of Havana **October 2016 - May 2017**
Software Development and Infrastructure Intern
- Created a python 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 python program for maintaining an expense database which allowed users to efficiently parse through 8 funding accounts and visualize 11 different expense categories locally.

</> 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 technical and sentiment analysis for tickers on high traffic sub-reddits and twitter using various APIs (Polygon, PRAW, Stocktwits).
- Custom multi-model pipeline achieved an alpha of 4.94 (compared to the SP500), a beta of 1.07. Provides an average annual return of approximately 15.04% through back testing with data since 2003 compared to the ∼10.1% provided by the SP500.
- Testing with funds in a brokerage account since Jan 2020 resulted in a portfolio growth of ∼1360%.

Event Attendance Tracker – Team 13 (Fall 2020)   **View Project**

C, Java, EAGLE, KiCad, Soldering, PCB Design
- Created a custom-designed PCB containing an ESP- 32 micro controller programmed in C, and 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 booths attended, a >35% increase over tested alternatives.
- Overall solution results in a product that is ∼95% cheaper than current market competitors.

Pipelined Microprocessors   **View Project**

System Verilog, FPGA Development, Quartus Prime
- Designed a pipelined version of the LC3-b microprocessor with features such as cache, branch prediction, hazard detection, etc.
- Designed a pipelined version of the RISC-V microprocessor based on the RV32I ISA with cache and hazard detection.

Overwatch Aimbot

Python, OpenCV, PyTorch
- Ongoing project to develop an aimbot for Overwatch, that can be extended to other FPS games in the future.
- Utilizes a model trained on a custom dataset for object recognition alongside an HID emulated mouse to accurately detect and aim at opponents.

⚜ 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 TESPA Collegiate Tournament   **Fall 2020**
Illini Esports, 14th out of 1022 teams.

Overwatch Collegiate Cup   **Spring 2021**
Illini Esports, 8th out of 512 teams.

Overwatch Collegiate Esports National Championship   **Spring 2021**
Illini Esports, 5th out of 16 teams.

Ⓚ Kaggle Competitions

Kaggle Competitions Expert (Ranked 837 Globally)

Feedback Prize - Evaluating Student Writing   **View Competition**
Bronze medal finish. Current rank 171/2058.
Finetuned models (RoBERTa, DeBERTa, and funnel transformer) alongside pseudolabelled data to automatically segment texts and classify argumentative and rhetorical elements in essays.

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 the lungs of sedated patients.

PetFinder.my - Pawpularity Contest   **View Competition**
Bronze medal finish. Ranked 313/3537.
Created a multi model pipeline using transfer learning on efficientnet, and an image regression model (swin transformer) to predict the 'Pawpularity' of pet photos for adoption shelters.

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.