# YUNHANG LIN

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## OBJECTIVE

The first-year graduate student at Columbia University with proven programming and problem-solving skills. Contributed to several projects in CV, NLP, reinforcement learning and data processing. Seeking for an intern related to DS or SDE.

## EDUCATION

**Columbia University** — New York, NY
**M.S. in Electrical Engineering, Data-Driven Analysis and Computation Specialization** — Expected Dec 2022

**Southeast University (SEU)** — Nanjing, CN
**B.Eng. in Information Engineering** (Chien-Shiung Wu College) — Jun 2021

## SKILLS

- Programming: Python, MATLAB, SQL, C/C++, HTML, Verilog, VHDL, HLS, LaTeX.
- Frameworks: TensorFlow, PyTorch, Keras, Pandas, OpenCV, Scikit-learn, Spark, Hadoop, Django.
- Platform: AWS, Google Cloud Platform, MySQL, BigQuery, MongoDB, Neo4j, DataGrip, Anaconda, Jupyter, Airflow.

## PROFESSIONAL EXPERIENCE

**Amazon** — Seattle, WA
**Research Intern, Advised by Tong Liu** — Jul 2020 - Oct 2020

- Collected COVID-19 data from websites such as JHU-CSSE and visualized related data in the US by maps and diagrams, analyzed the spread trend of such virus, and concluded factors contribute to the increase.
- Performed data integration and data cleaning for economic, geographic, medical, and traffic data based on Pandas. Utilized Matplotlib to draw scatter plots for correlation between each parameter and confirmed and death cases.
- Proposed an innovative two-input LSTM network for epidemic prediction; achieved an RMSLE of less than 0.5 during model training. Concluded a linear correlation between confirmed cases and regional economy status.

**International Entrepreneurship Contest for University Students** — Kyoto, JP
**Team representative of 8, Won the second place** — Mar 2019 - May 2019

- Designed a small holographic 3D screen to transcode 2D images to present holographic 3D displays by rotating a high-density LED strip, based on the persistence of human vision.
- Finished the project report on Market Analysis, Promotions, and Investment and Financing Plan for the products.

## RESEARCH EXPERIENCE

**Carnegie Mellon University** — Pittsburgh, PA
**Researcher, Advised by Asst. Prof. Min Xu** — Jul 2020 - Dec 2020

- Established a database with data upload, management, archiving, and downloading functions; stored simulating cryo-electron tomograms of crowded cell cytoplasm with dozens of classifications and millions of numbers.
- Altered requirements with a senior graduate team to generate a web application framework based on Django written in Python; required data models to form maps with a MySQL-based dataset.
- Created a URL distributor to deliver URLs page requests to Views where corresponding Models and Templates were called, to realize data access in the database.
- Compiled HTML and CSS front-end files; designed graphical interfaces with mapping response; established a web interface with viewing and operating capabilities; allowed super users to access and manage background data.

**Southeast University** — Nanjing, CN
**Undergraduate Research Assistant, Advised by Prof. Deyu Zhou** — Jan 2021 - Jun 2021

- Gathered emotional statements about COVID-19 on Weibo through crawlers and keyword searching.
- Transferred extracted information into 200-dimensional word embedding matrixes.
- Utilized Bi-LSTM in ECPE (Emotion-Cause Pairs Extraction) model to locate distributions of emotion and cause clauses and paired the two sets. Set up a filter to eliminate emotional pairs with no causal relationship.
- Received emotions and causes results among 21060 segments with 0.6589 F1 score.

**National Engineering Research Center For ASIC, SEU** — Nanjing, CN
**Research Assistant, Advised by Prof. Meng Zhang** — Nov 2018 - Apr 2020

- Led a research team of five people to fine-tune the MobileNet as a backbone network and apply detection layers of the YOLO (You Only Look Once) algorithm to form a completed real-time object detection model.
- Designed algorithms to embedded systems with Verilog and Vivado HLS (High-level Synthesis); improved average accuracy and FPS (Frames Per Second) of detection with fewer parameters and lower computational complexity.
- Satisfied a variety of external equipment access, including real-time detection of images captured by cameras on the ZYNQ Platform and demonstration of detected results on an external display.