

# Haomin Lin

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<https://humaslin.github.io>

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## EDUCATION

### **M.S. in Computational Science and Engineering**

Georgia Institute of Technology, Atlanta, GA

(exp.) May 2021

- GPA: 4.0/4.0
- Selected Courses: Statistical Machine Learning; Data & Visual Analytics; Web Search & Text Mining; Intro Database Systems; Modeling and Simulation: Fundamentals & Implementation

### **B.Eng. in Optical Engineering (joint with Nankai University)**

Tianjin University, Tianjin, China

July 2019

- GPA: 3.6/4.0
- Selected Courses: Fundamentals of Computer Software; Probability Theory and Mathematics Statistics; Linear Algebra

## RESEARCH EXPERIENCE

### **Research Assistant**, Indiana University

May 2020 - Now

Supervised by Prof. Xiaojing Liao

- Scraped text data from website of ICS-CERT Advisories and pre-processed it as pure text files.
- Extracted key information from structured/unstructured text data with regular expressions.
- Transformed information to more general values that represent the features of vulnerabilities.

### **Research Assistant**, Purdue University

July 2018 - Sept 2018

Supervised by Prof. Meng Cui

- Designed and produced a component using 3D printing to perfectly hold lens and the motor that drives the gears to adjust lens.
- Created a GUI program in Python to interface with the motor to adjust lens in optical experiments manually and automatically.
- Studied and implemented Structured Illumination Microscopy algorithm in Python by reading and summarizing research papers.

### **Research Assistant**, Nankai University

Feb 2017 - Mar 2018

Supervised by Prof. Yange Liu

- Conducted several experiments to collect energy absorption data and made visualizations to detect the peaks in the plot.
- Analyzed the result of energy absorption of the fiber at different frequencies from experiments on different fiber structures.
- Compared the performance of different fiber structures to adjust experiment plans, finding the best one with great absorption rate at 980nm for mode conversion.

### **Research Assistant**, Huaqiao University

July 2017 - Aug 2017

Supervised by Prof. Jixiong Pu

- Implemented Genetic algorithm to produce focusing points in diffracted light field with a laser system.
- Collected data and produced visualization of key parts in the light field to adjust the parameters that help to generate a better focusing pattern.
- Finished a project of constructing multi-focused light field that includes multiple high resolution focusing points.

## PROJECTS

### **Uber saver**

- Conduct data wrangling on large-scale raw data and integrate data from different Uber services using SQL.
- Build a software to predict surge multiplier for riders with Random Forest classifier in Python SciKit-Learn with accuracy over 80%.

- Design a visualization of prediction results shown as a heatmap with interactive features using D3.js.

#### **Simulation of rumor spreading in social network**

- Create a simulation software to simulate rumor spreading in a social network with Discrete Event Simulation.
- Validate the output of simulation system through statistical analysis and create visualization with Matplotlib.

#### **Community & Digital Archives Project**

- Identify negative comments on Allen Archive website at Georgia Tech for administrators using sentiment analysis in PHP with the help of VADER lexicon.
- Train a Machine Learning model to recognize different kinds of maps with accuracy over 90% based on Transfer Learning using Tensorflow.

#### **Revealing Gendered Language in Job Descriptions**

- Crawl around half a million job postings from Indeed.com and then aggregate them into one dataset using Pandas.
- Make prediction on salary levels of job postings that don't have salary information with Ensemble learning to get more data, achieving 87% accuracy.
- Categorizing job descriptions into 16 industries by counting the frequencies of keywords from each industry and analyze the gender scores in each industry.

PROFESSIONAL EXPERIENCE   **Research Technician Intern**, HC SemiTek Corporation, Yiwu, China   Jan 2018 - Feb 2018

- Worked out a new design with a 10-people team by studying novel research results and running simulations.
- Analyzed customer behavior and predict product features worth improving using NumPy and Pandas.

COMPETENCES   **Techniques** Python, SQL, JavaScript, D3.js, Tableau, SciKit-Learn, NumPy, Hadoop