

# Zachary Butler

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## Education

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### Georgia Institute of Technology

September 2017 - May 2021

Major: Computer Science with a focus in Intelligence and Theory

GPA: 4.00/4.00

Dean's List, Faculty Honors

Relevant Coursework: Machine Learning (CS4641), Game AI (CS4731), Intro to Artificial Intelligence (CS3600), Design of Algorithms (CS3510), Combinatorics (MATH3012), Statistics and Applications (ISYE3770), Data Structures and Algorithms (CS 1332)

## Skills

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**Languages:** Python, Java, MATLAB, C++, R, C#, MS SQL Server

**Frameworks/Libs:** Keras/TensorFlow, nltk, deap, SciPy (NumPy, pandas), scikit-learn, mpmath, matplotlib, openCV

**Technologies:** Git/GitHub, Linux/Windows, Amazon Web Services, Jupyter Notebook, Anaconda

## Work Experience

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### Research Assistant

January 2019 - Present

Georgia Tech Research Institute, Automated Algorithm Design Team

- Research team developing a framework that combines human and machine learning/deep learning techniques to create optimized, hybrid algorithms
- Subteam focused on time series and deep learning regression of stock prices, predicting trends and revenue based on historical data

### Software Engineering Intern

May 2019 - August 2019

Leidos

- Designed a python application to track radar-undetectable planes and perform oceanic trajectory computations over oceanic flights
- Updated a database query to use specific inputs and filter database to dump into a CSV and Excel file

### Executive Board Member, Full-stack Developer

April 2018 - Present

Metis Health ([www.metishealth.org/about](http://www.metishealth.org/about) to learn more about our team)

- Created production application and database
- Managed project development of RFID system for reducing sanitation issues in hospitals

### Software Engineering Intern

May 2018 - May 2019

RKF Engineering Solutions

- Updated legacy codebase, recreating a tool for file analysis and increasing runtime by 10x
- Built an application to generate image files from text input

### Software Engineering Intern

June 2016 - August 2016

Upskill (formerly APX Labs)

- Upgraded Google Glass GDK's voice activation and use system

## Personal Projects

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### Image Restoration / Inpainting

January 2019

- Developing a deep learning project created to restore damaged photographs
- Creates a dataset of artificially impaired photographed based around different types of damage (friction marks, color distortion, etc.)
- Uses a partially convolutional neural network designed by NVIDIA for image inpainting, with future plans to implement a generational adversarial network

### Spooky Author Identification

June 2019

- A natural language processing tool built to identify and classify horror authors based on their writing styles
- Implements python libraries such as nltk and TensorFlow to create Naive Bayes and CNNs that use relational words to classify authors into categories and predict who they are

### Fantasy-Prophecy

May 2019

- NFL Fantasy prediction tool using classical and machine learning models for forecasting of future player production
- Tests the accuracy of time series models (ARIMA, Holts-Winters) against that of machine learning models (BNN, RNN, LSTM) in modeling non-statistical data