

## SKILLS

• **Software Engineering:**

- C, C++
- Python, Java
- Git, Bash

• **AI Dev:**

- TensorFlow  
Developer Certified
- PyTorch, Keras
- Scikit-Learn
- OpenCV
- NumPy, SciPy
- R, Pandas
- Basic SQL and pyTaco
- Anaconda, PyCharm

• **Web Dev:**

- HTML/CSS:
  - EJS/Handlebars
  - Bootstrap
- Javascript:
  - Node.js
  - Express.js
  - MongoDB

• **LaTeX**• **Fluency in Russian**

## COURSEWORK

• **Computer Science:**

- Data Structures
- Software Construction Lab
- Artificial Intelligence
- Algorithms and Complexity

• **Mathematics:**

- Discrete Structures
- Graph Theory
- Machine Learning
- Data Theory

• **Statistics:**

- Probability
- Data Analysis and Regression
- Statistical Models and Data Mining

## PROFESSIONAL EXPERIENCE

## UCLA MACHINE LEARNING LAB

RESEARCH ASSISTANT

JANUARY 2021 - PRESENT

- Researching Semi-Supervised models for Nonnegative CP Decomposition of Tensors (SSNCPD: a form of tensor factorization) using *TensorFlow*, *PyTorch*, and *NumPy* backends.
- Co-leading a software team on developing an open-source Python package of multiplicative update methods for SSNCPD. Expected to be released at the end of 2021.
- Testing package on echo-cardiogram videos that were preprocessed into tensors with packages from *OpenCV* and raw data tensors from *Kaggle* which are imported using *pyTaco*.

## STEAM:CODERS

INTERN &amp; TUTOR

OCTOBER 2020 - JULY 2021

- Promoted from volunteer tutor to paid intern in just 3 months.
- Initiated and developed a data system using *MongoDB* of student information (attendance, quiz scores, etc.) from *JSON files* so faculty can utilize student data to improve future instruction.
- Spearheaded and implemented a new curriculum in machine learning, exceeding enrollment expectations by a magnitude of three due to high student engagement.
- Utilized *Scratch*, *Keras (Python)*, *Javascript*, and *Java* for instruction.

## ACM-AI

OFFICER | SEPTEMBER 2019 - 2020;

MEMBER | SEPTEMBER 2018 - PRESENT

- Organized the Advanced AI learning track: taught UCLA students difficult ML concepts: *activation and loss functions*, *backpropagation*, *CNNs*, *RNNs*, *NLP*, *transfer learning*, etc.
- Engaged in advanced AI workshops from freshman year until promotion to an officer position.
- Currently partaking in the "Apply ML" track, learning new tools and ways to develop ML models.

## PERSONAL PROJECTS

## CNN RESEARCH AND COMPUTER VISION EXPERIMENTS

2020 - 2021

- Researched the mathematical foundations of Convolutional Neural Networks (CNNs) such as *convolution*, *pooling*, *flattening*, *dropout*, and *fully connected NN layers*.
- Conducted initial experiment with a *CNN* using *Keras* to train the handwritten *MNIST dataset*.
- Integrated code, math derivations, and graphs cohesively into a research paper using *LaTeX*.
- Extended the project over the course of 2021 to several *computer vision* problems that employed *transfer learning*, *ImageDataGen*, and *Image Augmentation* with *TensorFlow*.

## FORECASTING WITH TIME SERIES

2021

- Implemented two time series models with *RNNs* using *Tensorflow* in *PyCharm IDE*.
- First: Predicted Google's Stock Price with *LSTM* and *Dropout* layers.
- Second: Predicted Sunspots with *multi-bidirectional LSTMs*, *Convolutions*, and *Lambda* layers.
- Preprocessing data with *Pandas* and *Sklearn*; creating *windowed datasets*; plotting series data.

## NATURAL LANGUAGE PROCESSING (NLP)

2021

- Tackled three major tenets of *NLP*—*Embeddings*, *RNN architectures with LSTMs/GRUs*, and *text generation*—through applications of these models using *Tensorflow/Keras*.

## AUTONOMOUS CAR

2020

- Developed a *neural network* model using *PyTorch* on *Anaconda's Spyder IDE* that implements *Reinforcement Learning* concepts such as *Q-learning*, *Memory Replay*, and *Markov Processes*.
- Adapted the model to a *GUI* of the mini-game: As the car drives, the user can add "sand" to indicate where the car should avoid driving. Over time, the car learns to avoid the sand to reach its destination faster.