# Andreas Karagounis

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## EDUCATION

**Brown University,** Providence, RI
SEPTEMBER 2017 - MAY 2018
**Masters of Science in Computer Science Candidate, GPA: 3.7/4.0**

**Brown University,** Providence, RI
SEPTEMBER 2013 - MAY 2017
**Bachelor of Science Computer Science-Economics, GPA: 3.5/4.0**

## RESEARCH

**Serre Lab,** Providence, RI — *Research Assistant*
JANUARY 2017 - PRESENT

**Automating Connectomics**

- Trained deep Convolutional Neural Networks (CNNs) for automating 2D and 3D segmentation of neural processes in Electron Microscopy (EM)
- Worked with the chair of the Neuroscience Department to explore methods for automating the annotation of unlabeled rodent brain volume
- Implementations include a modified Unet and Fully Convolutional DenseNet in **Tensorflow**

**Automating Pathology**

- Trained deep CNNs in **TensorFlow** to detect tumors in magnified images of histopathology
- Created saliency maps to detect tumors at the cellular level
- Awarded $50,000 grant for continued research

**Modelling Human Vision Using Convolutional Neural Networks**

- Built data pipeline in **TensorFlow** that extracts features from each convolution and fully connected layer of a CNN and trains and tests a Support Vector Machine (SVM) on each layer
- Retrieved and parsed human web experimental data using **SQL** and **Python** to compute correlations between human categorizations and the categorizations generated by the trained SVMs

## TEACHING

**CLPS1950: Deep Learning in Brains, Minds and Machines, CS1951A: Data Science, CS100: Data Fluency For All,** Providence, RI — *Teaching* Assistant
JUNE 2016 - JANUARY 2018

- Created course materials from scratch in **Python** and **R** on linear regression, logistic regression, neural networks and CNNs
- Held office hours, labs and graded homeworks

**Brown Datathon,** Providence, RI — *Workshop Facilitator*
MARCH 2017 AND MARCH 2018

- Held workshop on fundamental techniques and properties of deep learning and demonstrated how to build a neural network in **Keras** for predicting house prices
- Held workshop creating an interactive K-means clustering **Shiny R** web app

## PROFESSIONAL EXPERIENCE

**Black Sea Trade and Developmental Bank,** Thessaloniki, Greece — *Intern*
JUNE 2014 - AUGUST 2014

- Analyzed and presented financial and geographical data of banking clients using **Excel**
- Identified Greek companies in need of long term loans using financial statements
- Successfully identified a marble company in need of a loan exceeding 8 million euros and negotiated relations with the Bank

## COMPETITION

**Kaggle Invasive Species Monitoring Competition**
Placed in the top 14% by fine-tuning Vgg16 fully connected layers using batch normalization and image augmentations

## COURSES

Algorithms and Data Structures
Big Data
Computational Vision
Computer Systems
Comp. Probability and Statistics
Database Management Systems
Data Science
Econometrics
Machine Learning
Prescriptive Analytics
Statistical Inference
Recent Applications in Prob. and Stat.
Vision for Graphics

## SKILLS

**Programming Languages**
Python (expert)
R (expert)
SQL (proficient)
Java (proficient
MATLAB (proficient)
**APIs**
TensorFlow (expert)
D3.js (proficient)

## LANGUAGES

English (native)
Greek (native)