# MIKAYLA TIMM

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## EDUCATION

**University of Massachusetts Amherst, 4.0 GPA** *September 2017 - Present*
Ph.D. in Computer Science, advised by Subhransu Maji

**University of West Florida, 3.99 GPA, Summa Cum Laude** *2014-2017*
BS in Computer Science, Minor in Mathematics

## RESEARCH EXPERIENCE

**University of Massachusetts Amherst** September 2017 - Present
*Graduate Research Assistant - Computer Vision Research Laboratory*

- Investigating deep learning techniques for texture attribute prediction, generating open-ended, natural language descriptions of textures, synthesizing textures based on natural language descriptions, and image retrieval from natural language.
- Researched computer vision techniques for fine-grained visual categorization of animals in camera trap images at the species level and individual level.

**MIT Lincoln Laboratory** June 2017 - August 2017
*NLP Summer Research Intern - Group 104 (Intelligence and Decision Technologies)*

- Researched natural language processing techniques for generating word embeddings in the multilingual context to enable performing NLP tasks on inherently multilingual data, such as tweets.
- Developed a system for processing multilingual text corpora, training word embeddings, visualizing the resulting high dimensional vectors in a 2D space, and performing intrinsic evaluations on the embeddings, such as analogies and nearest neighbors.

**University of West Florida** September 2016 - May 2017
*Wearable Device Security Research Assistant*

- Utilized supervised learning algorithms to classify biometric data obtained from simulated wearable device cyber attacks.
- Helped collect and label wearable device data, performed simulated device synchronization attacks over Bluetooth, and built models to understand what data was obtained from the synchronization packets.

**University of West Florida** May 2016 - August 2016
*Summer Undergraduate Research Scholar*

- Researched supervised machine learning techniques for predicting outcomes of animals in shelters.
- Performed data analytics on animal shelter data to observe relationships between animal attributes and outcomes.

**University of Massachusetts Amherst** May 2015 - August 2015
*REU Student Researcher - Computer Vision Research Laboratory*

- Researched computer vision algorithms for identifying individual jaguars in images to assist ecologists with their conservation efforts.
- Worked with the UMass Department of Environmental Conservation to collect and label images.
- Implemented a system for performing automatic jaguar identification invariant to changes in scale, rotation, translation, illumination, and partial occlusion.

## PROGRAMMING LANGUAGES AND OTHER PROJECTS

**Languages** Python, MATLAB, C, Java, C#, R, SAS, SQL, LISP, Prolog

**Projects**
**Image Captioning** with LSTM Networks
**Plagiarism detection** program for analyzing similarity between files
Programmed **iRobot Create** to give university tours using sensors and speakers
**Shell program** for parsing commands & running distributed computing applications
**Queue simulation program** for analyzing throughput for service channels
**Genetic algorithm** approach to solving the Traveling Salesman Problem
LL(1) **recursive descent parser**, generating assembly code for arithmetic operations
Library of various **numerical approximation algorithms**
**Pokemon Go-style mobile app backend** for introducing students to UWF campus
**3D competitive game** "Mathematicats" for helping middle schoolers learn math

## PUBLICATIONS AND PRESENTATIONS

- **Timm, M.**, Wu, C., Maji, S. (2018). **Fine-Grained Texture Understanding with Natural Language Descriptions.** Poster presentation in *New England Computer Vision Workshop* at Harvard University, 2018.
- **Timm, M.**, Maji, S., Fuller, T. (2018). **Large-Scale Ecological Analyses of Animals in the Wild using Computer Vision.** Poster presentation in *CVPR Workshop on Fine-Grained Visual Categorization (FGVC5) and Women in Computer Vision Workshop (WiCV)*, 2018.
- **Timm, M.**, El-Sheikh, E. (2017). **An Evaluation of Machine Learning Algorithms for Prediction of Shelter Animal Outcomes.** In A. Bossard, G. Lee, & L. Miller (Eds.), Proceedings of 32nd International Conference on Computers and Their Applications, March, 20-22, 2017, Honolulu, Hawaii, USA. Winona, MN, USA: ISCA.
- Reichherzer, T., **Timm, M.**, Earley, N., Reyes, N., & Kumar, V. (2017). **Using machine learning techniques to track individuals & their fitness activities.** In A. Bossard, G. Lee, & L. Miller (Eds.), Proceedings of 32nd International Conference on Computers and Their Applications, March, 20-22, 2017, Honolulu, Hawaii, USA. Winona, MN, USA: ISCA.

## HONORS AND ACHIEVEMENTS

**CVPR Women in Computer Vision** Travel Grant Recipient *Summer 2018*
**CRA-W Grad Cohort** Workshop Participant *Spring 2018*
**Edward Riseman and Allen Hanson Scholarship**, UMass Amherst CICS *Fall 2017*
**1st Place, Most Technical, and Most User-Friendly** Project in UWF Codefest *Spring 2017*
**Grace Hopper Celebration of Women in Computing** (GHC) Scholar *Fall 2016*
**Nick Johnson Academic Scholarship**, UWF Computer Science *Fall 2016*
**IT Performance Scholarship**, UWF Computer Science *Fall 2016*
**Outstanding Undergraduate Student** in Computer Science Award, UWF *Spring 2016*
**Best Student Project** in Computer Science, UWF Office of Undergraduate Research *Spring 2016*
**1st Place** in Division 2 ACM Southeast ICPC *Fall 2015*
**Nautilus Scholarship**, UWF *Fall 2014-Spring 2017*
**Florida Bright Futures** Academic Scholars Award *Fall 2014-Spring 2017*

## SERVICE

**Girls Inc. Eureka!** "Introduction to Creative Computing" Workshop Volunteer *Summer 2018*
**UMass Amherst** CS Women Graduate Member *Fall 2017-Spring 2018*
**UWF Code & Tech Stars** Workshop Volunteer *Spring 2017*
**UWF ACM** President and Founder *Fall 2016-Spring 2017*
**UWF ACM-W** President and Founder *Fall 2016-Spring 2017*
**PACE Center for Girls** (Pensacola, FL) Summer Coding Workshop Instructor *Summer 2016*