Keanu Nichols

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Education

Boston University — Boston, MA
PhD in CS — *September 2023 – Present*
Research Advisor: Bryan Plummer

Boston University — Boston, MA
MS in AI — *September 2021 – December 2023*
Research Advisor: Bryan Plummer
Degree GPA: 3.95/4.0

The University of the West Indies — Trinidad
Bachelor of Science in Computer Science Special — *Aug. 2017 – May 2021*
Degree GPA: 4.03/4.3

Publications

1. **Nichols K.**, Hosein P., Estimating Deforestation using Machine Learning Algorithms, The International Conference on Intelligent Data Science Technologies and Applications *(IDSTA2021, IEEE Estonia Section)*

2. Hosein P., Rahaman I., **Nichols K.**, Maharaj K., Recommendations for Long-Term Profit Optimization, 1st Workshop on the Impact of Recommender Systems - Denmark *(ACM RecSys 2019 - **Best Paper**)*

Experience

Graduate Student Researcher — Jan 2022 – Present
Boston University — *Boston, MA*

- Comparing phrase grounding techniques that support multiple languages
  - Compared translation based phrase grounding models with monolingual based grounding models
  - Determining the impact that large transformer based models vs fasttext based embedded models have on phrase grounding datasets like Flickr30K Entities
- **DARPA SemaFor** (UC Berkeley/BU Team) project: focusing on problems related to manipulated media for image categorization and manipulated region detection
  - Implementing the Microsoft GLIP model for determining the label assigned to a given region in an image given a set of known labels
  - Currently ranked at the top for 4/6 inhouse competitions for the SemaFor project
  - Determining the impact of combining the GLIP model predictions with a vision transformer model (UPerNet) trained on manipulated media to determine if the misinformation is harmful

Machine Learning Undergraduate Researcher — April 2018 – August 2021
TTLAB — *Trinidad*

- Researched and proposed the use of drones to detect weeds and determine plant health, providing concrete evidence of past success using these methods (in other countries) for a **National Geographic/Microsoft/NVIDIA** research grant **AI For Earth** (awarded $**70,800** USD)
  - Investigated Segmentation models (DeepLabV3, U-Net, Segnet) on a toy dataset for weed detection with U-Net getting the highest IOU-Score of 83%
- Developed a recommender system using Multinomial Naive Bayes that showcased a profit/probabilistic trade-off for its recommendations
  - Utilized the MovieLens dataset to showcase how companies that promoted recommendations not suited to a customer lost money in the long term because customers were less likely to use those recommendations

Deep Learning Research Intern — June - August 2019
NASA Ames Research Center — *Mountain View, CA*

- Developed an image segmentation model to classify Landsat images as having either clouds or not using a Fully Convolutional Networks based model using Tensorflow/Keras Dataset API

Software Engineer — May - August 2018
Community Health Analytics Open Source Software — *Remote*

- Conducted sentiment analysis using NLTK to determine differing levels of toxic emails