ZEYNEP HAKGUDER

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EDUCATION

University of Nebraska-Lincoln *August 2017 - December 2020 (Expected)*
PhD in Computer Science, *Machine Learning Specialization* *Cumulative GPA: 3.969*

EXPERIENCE

Teaching Assistant

Design and Analysis of Algorithms	*Fall 2018 —*
Introduction to Machine Learning	*Summer 2018*
Data Structures and Algorithms	*Summer 2017 & Spring 2018*
Introduction to Python Programming	*Fall 2017*

Research Assistant *January 2017-May 2018*

SBBI Lab, Department of Computer Science and Engineering

SKILLS

Programming Languages	Python, JavaScript
Scripting Languages	Bash, AWK, sed, LaTeX, SQL
Deep Learning Libraries	Pytorch, TensorFlow, Keras
Machine Learning & Data Manipulation Libraries	Scikit-Learn, Pandas, NumPy
Visualization	Matplotlib, Seaborn
Operating Systems	Linux
Scientific Computing & Containerization	OSG, Docker
Software & Tools	Emacs, Jupyter Notebooks
Database Systems	MySQL, MongoDB
Web Technologies	Node, Express, React, Redux, REST
Native	React Native

PROJECTS

Research Projects

Computer Vision:

- (Ongoing) Develop and implement methods to identify pig posture. Achieved 98% accuracy. Used Tensorflow.
- (Ongoing) Develop and implement deep methods for computational jigsaw puzzle solving

Deep reinforcement learning: Contributed to implementation of a reinforcement learning agent in different game environments. Mined agent action data. Used TensorFlow, Keras, AWK.
Deep semantic hashing: Develop and implement methods to find similarity preserving embeddings of data using locality-sensitive hashing. Used TensorFlow & Keras.
Deep Generative Models for Optimization Problems: (Ongoing) Develop and implement methods to solve optimization problems. Used PyTorch, TensorFlow.
Biological molecule target prediction: Predicted binding interactions between biological molecules with Gaussian Mixture Models. Used Scikit-Learn & Pandas, super computing resources of OSG, and Docker for containerization.

Side Projects

Machine Learning

Naive Bayes Classifier, Decision Tree Classifier (ID3)
Document similarity using Locality Sensitive Hashing

Web & Native Applications

ToDo List
Games: Pong, Simon, Game of Life (React, Redux)
Location-based job search app (React Native, Redux)

RELEVANT COURSES

UNL
Pattern Recognition (Deep Learning), Seminar in Deep Learning (3 Semesters)
Introduction to Machine Learning, Computational Intelligence (Neural Networks, Genetic Algorithms)
Algorithms for Large Scale Data
Statistical Methods in Research, Multivariate Statistics, Probability Theory
MOOC (Coursera)
Improving Deep Neural Networks, Structuring Machine Learning Projects

WORKSHOP & CONFERENCE PRESENTATIONS

Workshop on Support Vector Machines, *University of Nebraska Medical Center* *2019*
Co-organized the workshop, contributed to hands-on session material preparation & presentation.

Oral Presentation at International IEEE Conference BIBM, *Kansas City* *2017*

PUBLICATIONS

Dong Xu, Eleanor Quint, **Zeynep Hakguder**, Haluk Dogan, Stephen Scott, and Matthew Dwyer. "Constraining Action Sequences with Formal Languages for Deep Reinforcement Learning." (2018).

Zeynep Hakguder, Jiang Shu, Chunxiao Liao, Kaiyue Pan, and Juan Cui. "Genome-scale MicroRNA target prediction through clustering with Dirichlet process mixture model." BMC genomics 19, no. 7 (2018): 658.

Zeynep Hakguder, Chunxiao Liao, Jiang Shu, and Juan Cui. "A new statistical model for genome-scale MicroRNA target prediction." In 2017 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), pp. 101-107. IEEE, 2017.

Zeynep M. Hakguder, Dicle Yalcin, and Hasan H. Otu. "Bioinformatics approaches to single-cell analysis in developmental biology." MHR: Basic science of reproductive medicine 22, no. 3 (2015): 182-192.

ACADEMIC SERVICE

Subreviewer for IJCAI (International Joint Conferences on Artificial Intelligence) 2018 —