Blaine Hill

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EDUCATION

The University of Illinois at Urbana-Champaign — **August 2022 - Present**
Master of Science in Computer Science
3.7 Cumulative GPA, May 2024 Expected Graduation

The University of North Carolina at Chapel Hill — **August 2019 - May 2022**
Bachelor of Science in Computer Science, Bachelor of Science in Statistics
3.7 Cumulative GPA

EXPERIENCE

Culter Group, LLC — **July 2023 - August 2023**
Quantitative Trader Intern

Google — **April 2023 - July 2023**
Software Engineer Intern, YouTube Ads
Improved ad quality by applying conditional multimodal generative AI models CTRL and MMUM to automate advertiser-friendly campaigns, improving ad evaluation by 8% using ad attributes as features.
Collaborated with Google Research to finetune YouTube models for this task.
Deployed models on internal platform to reach XXXmm customers.

Capital One — **May 2022 - August 2022**
Software Engineer Intern, Customer Experience Team
Constructed an end-to-end sentiment analysis pipeline for managing real-time customer feedback; allows instant experience rectification through customer feedback, improving proprietary satisfaction index by XX%.
Implemented a state-of-the-art Transformer AI model with Python: roBERTa-Large with Self-Explaining.
Deployed pipeline on Amazon Web Services with SQS, Lambda, and DynamoDB microservices.

IQVIA — **May 2021 - August 2021**
Artificial Intelligence Intern, Internal Vendors Team
Designed an invoice parser to automate information extraction through modeling in Python, saving over $0.3M annually by directly billing vendors with parsed invoices.
Utilized the PyTesseract library for optical character recognition of invoices.
Implemented a graph convolutional neural network to incorporate both spatial and semantic information.

RESEARCH

Knowledge Graph Reasoning via Graph Neural Networks — **August 2022 - Present**
Dr. Hanghang Tong, Department of Computer Science, UIUC
Researching nascent extensions of graph neural networks (GNNs), especially furthering the fusion of GNNs alongside reinforcement learning (RL) techniques to solve various tasks such as knowledge graph (KG) completion, policy optimization over graphically structured data, and more.

Active Feature Acquisition Modeling and Analytics — **August 2021 - May 2022**
Dr. Junier Oliva, Department of Computer Science, UNC-CH
Researched RL with Active Feature Acquiring surrogate models to optimize decision policies from features throughout training.

PUBLICATIONS

Ginkgo-P: General Illustrations of Knowledge Graphs for Openness as a Platform
Blaine Hill, Lihui Liu, Hanghang Tong - Under Review, CIKM '23
A demo paper to both automate infrastructure for KG visualization and to codify several important KG reasoning categories: KG completion, KG question answering, KG subgraph extraction, and KG with RL optimization.

Conversational Question Answering with Reformulations over Knowledge Graphs
Lihui Liu, Blaine Hill, Boxin Du, Hanghang Tong - Under Review, CIKM '23
A long paper to tackle the challenge of conversation question answering by using a learned RL policy to both reformulate natural language questions and answer them using graph data.

PROJECTS

Arcane
Constructed a web application employing Spotify user data to generate unique personalized discographies; increases listening sessions by over 2 hours on average.
Utilized the React, Express.js, and Node.js stacks as well as the Spotify Web API.
Programmed in JavaScript, HTML and styled with the Tailwind CSS and Bootstrap frameworks

Melanoma Classification
Compared the efficacy of a Convolutional Neural Network and Visual Transformer to classify skin cell images as malignant or benign with UNC Hospitals' patient data; obtained 87% accuracy.
Transformed data with rotations and flips to augment training dataset.
Written in Python, utilizing the PyTorch package for fluidity.

HONORS / AWARDS

3rd Place 2019 Pokemon Trading Card Game World Championship
August 2019
Was invited to compete after the 2018-2019 tournament circuit.
Finished as the best placing American in the 2019 season.

SKILLS

Languages
Python, R, C++, C, Java, JavaScript, HTML, SQL

Tools / Frameworks
AWS, Git, Snowflake, Keras, Tensorflow, pandas, NumPy, nltk, scikit-learn, React, Node.js, Express.js, MySQL, MongoDB, Material-UI, Tailwind CSS