VYOM THAKKAR

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Education

University of Illinois Urbana-Champaign	**May 2022**
Master of Science in Electrical and Computer Engineering, GPA: 3.89/4.00	*Champaign, Illinois*
University of Illinois Urbana-Champaign	**May 2020**
Bachelor of Science in Computer Engineering, GPA: 3.91/4.00 (High Honors)	*Champaign, Illinois*

Technical Skills

Languages: Python, Javascript, HTML, CSS, SQL, C++/C
Technologies/Frameworks: React, Node.js, MongoDB, Tensorflow, PyTorch, Django, Git, Neo4j

Experience

Dr. Bhat's Research Group in collaboration with Jump Simulation   **January 2021 – May 2022**
Graduate Research Assistant   *Champaign, Illinois, USA*

- Collaborated in a team of two developers to build an NLP-Powered Web App (**MERN stack**) that performs Automated Short Answer Grading of medical chart notes with the aim of providing real-time feedback to medical students.
- Developed student-view of the **React** frontend and styled using **Tailwind CSS**.
- Implemented the **Node.js** backend along with **user-authentication** in **Passport.js**.
- Automated **data collection & processing pipeline** for the NLP system, that reduced time-to-view grades by **10x**.
- Improved the **accuracy** of NLP model by **16%** by making use of **AWS Comprehend** for medical entity extraction and implementing **BioWordVec** clustering.
- The system was **piloted with 3 cohorts** of medical students and presented during the International Meeting for Simulation in Healthcare in Los Angeles, Jan 2022.
- Based on user surveys, **90%** of the users who used our system thought it was helpful and found the user experience enjoyable.

Coordinated Science Laboratory, UIUC   **January 2020 – December 2020**
Student Researcher   *Champaign, Illinois, USA*

- Implemented NLP software to detect help-seeking student posts in large course discussion forums, with the aim of simplifying instructors' task in locating and answering these questions.
- Experimented with different NLP models including LSTM, Naive Bayes, Logistic Regression, Random Forest Classifiers and obtained **testing accuracy of 89%**.
- Augmented the training dataset by **mining text data** from Reddit using the **PRAW REST API** as well as the Stanford MOOC dataset by adapting the data to the help-seeking classification task.

Rational CyPhy Inc.   **June 2018 – August 2018**
Software Developer Intern   *Urbana, Illinois, USA*

- Refactored the backend code, implemented **unit-testing suite** and stress-tested the C2E2 verification tool (for cyberphysical systems) in different simulation environments.

Dynasense Technologies   **June 2017 – August 2017**
Software Engineering Intern

- Developed software to compute the angle between the tibia and femur bones for a computer-assisted surgery system.
- Implemented code to transfer real-time coordinate data between the hardware and software via **UART protocol**.

Projects

GAN for synthetic chest X-Ray image generation in Covid-19 detection | *Python, Pytorch*

- Trained a Generative Adversarial Network to generate synthetic chest X-Ray images which improved Covid-19 **classification accuracy** using Convolution Neural Networks by **1%**.

Champaign-Urbana Restaurant Recommendation Web App | *HTML, CSS, Javascript, Django, SQL*

- Coded the backend in **Django** and designed the **recommendation algorithm** using techniques like collaborative filtering, word vector similarity and bagging.

Honors

National Finalist at the **International Linguistics Olympiad** (ILO) Training Camp for Team India (2015 and 2016)