Huan Xu

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Seeking a full-time SDE position

Education

University of Wisconsin-Madison May 2023
Computer Sciences (honor), Mathematics, Statistics B.S. Madison, WI
- Cumulative GPA：3.88 / 4.0 | Dean's List 2019-2021
- Accomplished Coursework: Compilers, Algorithms, Operating Systems, Computer Networks, Database Management Systems, UI/UX Design, Artificial Intelligence, Linear Optimization, Probability Theory, Discrete Mathematics, Linear Algebra, Calculus, etc.

Skills

- **Programming Languages:** JavaScript, Python3, C/C++, Java, Bash, Batch, R
- **Frameworks:** React, Redux, Bootstrap, Flask, Node.js, REST, PostgreSQL, MongoDB
- **Development Toolchains:** Linux, Git, Bash, Tmux, Vim, Jenkins, Docker

Work Experience

Intel Corporation, AXG Group May 2022 - Present
GPU Software Development Engineer Intern
- Built the user role infrastructure for an internal graphics workload management tool by implementing SSO authentication, user authorization, and microservice authentication using the **MERN stack** and the **Azure Active Directory**.
- Automate the prevention, detection, resolution, and report of CI incidents by implementing a three-layer Jenkins health matrix, **Prometheus** and **Grafana** CI health data store and dashboard, and a CI firefighter as a **Jenkins** daemon.

University of Wisconsin-Madison, Computer Science Department Jan 2022 - May 2022
Undergraduate Teaching Assistant for Computer Graphics
- Hosted Computer Graphics office hours for 7 hours each week for questions about graphics concepts (e.g. transformations, curves, meshes, shaders, ray tracing, etc.) and APIs (e.g. Canvas, SVG, glMatrix, **GLSL**, **WebGL**, **Three.js**, etc.)
- Maintained and routinely updated the course website using the Hugo framework and **Github Action's CI/CD workflow**.

Teradata Corporation Jun 2021 - Aug 2021
Data Engineer Internship
- Responsible for credit card fraud prevention and detection for a world-top commercial bank. Extracted and processed credit card data from the data warehouse using **Teradata SQL** and **DSQL** and improved **ETL** routines using **Perl** and **Bash** scripts.
- Led the communication, demand analysis, and SQL development for a complex data extraction task requiring joining more than 20 tables across 2 databases. Wrote peer-reviewed SQL and communicated with the operation team to ship the data in time.

Research Experience

Vision-Based Real-Time Motion Capture System on Edge Device Jan 2022 - Present
Research Assistant supervised by Prof. Yu Hen Hu Madison, WI
- Proposed a real-time 3D motion capture system on edge devices based on the novel optimization technique that 3D temporal consistency can be used to compensate for more noisy 2D information for lower FLOP and higher FPS.
- Developed and deployed a lightweight 3D Human Pose Estimation pipeline on Jeston Nano that integrates YOLOv5, HRNet-Lite, and VideoPose3D using Docker and TensorRT and improved FPS by weight quantization and CNN channel pruning.

Synthetic Pretraining for Robust 3D Human Pose Estimation Jan 2021 - Present
Research Assistant supervised by Prof. Yin Li Madison, WI
- **Served as the 3rd author for the journal paper** *Learning from Synthetic Humans for Accurate and Generalizable 3D Pose Estimation* targeting **IEEE Transactions on Image Processing**. Synthesized realistic 2D keypoints to pretrain 3D estimators and showed a significant decrease of PA-MPJPE from 68.0 mm to 61.3 mm on the 3DPW dataset compared with the pretrained-with-H36M baseline.
- Spearheaded the development of a graphic rendering pipeline that infers human mesh from 3D human joints and shapes, and calculates dense depth maps with respect to sampled camera views by using OpenGL, Pytorch, and Scipy.

Vision-Based Job Risk Assessment System for Manual Material Handling Sep 2020 - Jan 2021
Research Volunteer Madison, WI
- **Served as the 3rd author for the journal paper** *A Single-Camera Method for Estimating Lift Asymmetry Angles using Deep Learning Computer Vision Algorithms* targeting **The Journal of the Human Factors and Ergonomics Society**. Collaboratively proposed a non-intrusive, visioned-based system to estimate the Body Asymmetry Angle by using pre-trained 3D Human Pose Estimators.
- Verified experiment results by setting up and running 6 human pose estimation methods on Unix-based OS with Docker and Anaconda and showed that our method produces statistically more accurate results than the previous SOTA by using the paired t-test.

Project Experience

NLP-powered Resume Parser | Apache2, WSGI, Flask, Flask, OpenAI API Feb 2022
https://github.com/hxu296/resume-parser-service
- Architected a RESTful real-time resume parsing service that leverages OpenAI's Natural Language Processing engine GPT-3 by using Flask, WSGI, and OpenAI API.
- Developed and maintained unit and integration tests with GitHub Webhooks and Jenkins Blue Ocean's CI/CD pipeline to smoothen deployment and improve fault tolerance for the new service.

Stock Drop Notifier | Selenium, BeautifulSoup, Regex, Requests, Python-Telegram-Bot API Dec 2020
- Built a customizable stock notifier for Newegg and BestBuy with a Telegram command-line interface that allows users to personalize search filters, fire up notifiers, and receive notifications all through 1 Telegram bot account by using Scrapy, Selenium, BeautifulSoup, Regex, Requests, and the Python-Telegram-Bot API.