

Heng Sun

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Summary

PhD applicant in Computer Science with 3+ years of research experience in AI for healthcare. My work focuses on developing robust ML models, building intelligent clinical systems, and designing real-time patient monitoring platforms. Experienced in interdisciplinary collaboration with clinicians, I aim to advance human-centered AI solutions that enhance decision-making and improve patient outcomes.

Education

University of Florida (Gainesville, FL) , BS in Computer Science	Aug 2019 – May 2023
<ul style="list-style-type: none">• GPA: 3.63/4.0• Coursework: Data Structure & Algorithms, Operating System, Deep Learning for Graphics	

Publications

Enhancing EHR Systems with data from wearables: An end-to-end Solution for monitoring post-Surgical Symptoms in older adults	Dec 2024
<i>Heng Sun</i> , Sai Manoj Jalam, Havish Kodali, Subhash Nerella, Ruben D. Zapata, Nicole Gravina, Jessica Ray, Erik C. Schmidt, Todd Matthew Manini, Parisa Rashidi	
10.1145/3636534.3698118	

Research Experience

Undergraduate Research Assistant (Paid) – Full Stack & ML Developer, University of Florida Biomedical Engineering Department – Gainesville, FL	Oct 2023 – Present
<ul style="list-style-type: none">• Conceived and developed TIBBY, an AI-powered wearable assistant that integrates RFID, mobile, and web interfaces to automate clinical documentation and support real-time decision-making (patent pending).• Processed medical video datasets to develop ML pipelines for automated annotation and behavior recognition in clinical research by using Python.• Developed an AI-assisted web tool leveraging OpenAI's GPT API to automatically extract core insights, titles, and hierarchical comment structures from user input and external web content for downstream NLP analysis.• Developed and evaluated deep learning models for multi-object detection and tracking using PyTorch and TensorFlow, including fine-tuning YOLO-based architectures for medical video analysis.• Designed and developed a healthcare data monitoring web application using Figma, ReactJS, Redux, and NodeJS, supporting real-time data visualization and clinical analysis.• Built and maintained a full stack face annotation tool using ReactJS, Python, FastAPI, MongoDB, and Atom, enabling efficient labeling workflows for medical video data.	

Projects

TIBBY – AI-Powered Wearable System (Patent Pending)	Mar 2025 - Present
<ul style="list-style-type: none">• Designed and developed a wearable AI assistant that automates real-time clinical documentation and delivers context-aware EHR data retrieval at the point of care.• Captures spoken clinical interactions to generate structured notes, reduces physician cognitive load, and accelerates documentation turnaround.• Integrates situational alerts, visual decision support, and peer consultation into a single platform, improving clinical efficiency and care quality.• Achieved seamless integration with existing hospital systems, enabling rapid adoption with minimal workflow disruption.	

- Positioned in the rapidly growing AI-enabled EHR/CDI market, highlighting strong commercial and societal impact.

Real-Time ICU Monitoring and Processing System

Aug 2025 - Present

- Designed and implemented a real-time system to continuously record RGB and depth camera streams from ICU computers in the background.
- Enabled persistent recording across user logouts, allowing new users to preview live camera feeds without interrupting ongoing recording sessions.
- Developed an automated dual-storage mechanism to save videos to an external drive when connected and simultaneously upload them to the lab's server.
- Integrated a conditional processing pipeline to run lab-trained models locally under Wi-Fi constraints and send only processed outputs to the server to reduce bandwidth usage.

AI-Powered Content Summarization and Comment Extraction Tool

Feb 2025 - Apr 2025

- Built a web-based tool leveraging OpenAI's GPT API to extract the core content from user-submitted text, enabling intelligent summarization and semantic filtering.
- Developed an automated pipeline to scrape web pages and extract titles, comments, and nested replies from a provided link, enabling real-time content analysis.
- Implemented a hierarchical comment structure (comments, subcomments, nested replies) to represent complex discussion threads.
- Combined advanced NLP techniques and GPT-based reasoning to surface key questions, opinions, and insights from long-form discussions.

Object Annotation Tool

Dec 2023 - Aug 2024

- Led the development of a web-based full stack annotation platform to support large-scale labeling of medical videos for machine learning research.
- Designed an intuitive ReactJS frontend integrated with a FastAPI backend, supporting multi-user collaboration.
- Utilized Python, OpenCV, and PyTorch for preprocessing and auto-suggestion modules that assist annotators using tracking and ML-based predictions.
- Generated side-by-side visualizations comparing original medical videos with annotated outputs, enabling efficient quality control and demonstrating annotation accuracy for ML training and validation.

ROAMM-EHR: Wearable Data Integration System

Oct 2023 - Feb 2024

- Designed and developed a real-time clinical data monitoring system for healthcare providers to track patient data from wearable devices using ReactJS and AWS Lambda Function.
- Developed a role-based access control system for clinicians, researchers, and administrators with custom data permissions.
- Engineered an automated emergency alert system that triggers emails to physicians when abnormal or high-risk data patterns are detected.

Work Experience

Software Developer Intern, PathPoint Energy LLC – Houston, TX

May 2023 – Sep 2023

- Developed and maintained the current gasoline trading platform.
- Implemented interactive features using ReactJS, and Redux.
- Integrated RESTful APIs using Python, and Django.
- Participated in the agile development process using Sprint methodology.

Skills

Languages: Python, JavaScript, TypeScript, C++, Java, Go, C#, SQL, MATLAB, R

Technologies: TensorFlow, PyTorch, YOLO, PicoVoice, React, MongoDB, Android Studio, Flutter, Unity Engine, Django, FAST API, Microsoft SQL Server, Git, Linux