Sicong Huang

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Self-driven AI researcher with **5+ years of interdisciplinary research experience** and **1 year of industrial experience** in developing advanced neural networks for time-series data and translating and deploying AI models into real-world clinical practice. I specialize in developing translational **digital health solutions** with advanced neural networks to enable early health screening, regulate life habits, and construct interactive patient representation (digital twin) to support and validate clinical treatments. I'm a **U.S. permanent resident** and able to work in the U.S. without sponsorship.

EDUCATION

Texas A&M University, College Station, TX — December 2025 (anticipated)
Doctor of Philosophy (PhD) in **Computer Science** — GPA: 3.90/4.0

Texas A&M University, College Station, TX — May 2021
Bachelor of Science (BS) in **Computer Science** — GPA: 3.72/4.0
Minor in **Cybersecurity** — **Magna Cum Laude**

WORK EXPERIENCE

Nuvenu LLC *(technology startup), Fort Worth, TX*
Database Administrator and Software Engineer — May 2020 – May 2021

- Architected and Implemented a cloud graph database with Cypher to handle relationships and interactions among business owners, customers, and posts & reviews
- Wrote RESTful APIs using .NET Core to enable the website to perform CRUD via HTTP requests to the database with MVC pattern
- Managed the project Agile Scrum, performed version control with DevOps, and deployed the service on Azure

Texas A&M University*, College Station, TX*
Undergraduate Peer Teacher at Department of Computer Science & Engineering — August 2018 – May 2021

- Assisted teaching assistants in lab sessions and tutored students across all foundational undergraduate courses from 100 to 300 levels
- Conducted weekly review sessions on CSCE 222, 312, and 313; held office hours both in-person and online

Student Technician at Student Computing Center and Open Access Lab — August 2017 – May 2018

- Troubleshoot technical problems related to Windows and MacOS machines
- Answered questions on both technical and miscellaneous questions in person and via phone

RESEARCH EXPERIENCE

Texas A&M University*, College Station, TX*
Graduate Research Assistant at the *STMI lab*, advised by *Dr. Bobak J. Mortazavi* — June 2021 – Present

- Converted pulsatile biomarkers into health parameters with a machine learning (ML) end-to-end pipeline that includes signal processing, transformation, and data-driven estimation with Python
- Analyzed and trained an accurate and automated diet monitoring ML model with R and Python
- Designed clinical IRB protocols for National Institutes of Health (NIH) grants with hospital collaborators and analyzed collected data for automated cardiac rehabilitation monitoring
- Advised 4 undergraduate and graduate researchers, managed 3 Linux workstations, and maintained lab website with Jekyll
- Developed software tools and libraries in Python to facilitate data analysis, visualization, and modeling
- Published and submitted 2 conference papers and 1 journal on peer-reviewed venues

Undergraduate Research Assistant at the *STMI lab*, advised by *Dr. Bobak J. Mortazavi* — August 2020 – May 2021

- Analyzed sentiments over 250K tweets with Spark and predict their political preference
- Implemented and tuned over 1000 NLP features including Part of Speech (POS), emoticon & emoji, lemmatization, and Hashtag labeling, etc.
- Validated the framework against various Baselines (LSTM, XGBoost, SVM, etc.) with cross-validation

Undergraduate Research Scholar at Innovation Information lab, advised by Dr. Anxiao Jiang — May 2019 – May 2020

- Classified the action of "looking down at phone" with an accuracy of 86.47% via 2D body landmarks extracted from videos and images in a supervised training
- Published undergraduate thesis and archived in OAKTrust

Member of Team 12th Unmanned, SAE/GM *AutoDrive Challenge* — August 2017 – May 2019

- Synchronized GPS and LiDAR signals to CAN bus with automatic script using C and bash on Linux workstation

*: equal contribution

- Designed and implemented user interface (UI) with Qt and JavaScript

PUBLICATIONS & SUBMISSIONS

- **Sicong Huang**, Roozbeh Jafari, Bobak Mortazavi, "ArterialNet: Arterial Blood Pressure Reconstruction", IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI) 2023 (Accepted with oral: **12%**)
- Lida Zhang, **Sicong Huang**, Anurag Das, Edmund Do, Namino Glantz, Wendy Bevier, Rony Santiago, David Kerr, Ricardo Gutierrez-Osuna, and Bobak J. Mortazavi, "Joint Embedding of Food Photographs and Blood Glucose for Improved Calorie Estimation", IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI) (Acceptance Rate: **12%**)
- **Sicong Huang**, Roozbeh Jafari, Bobak Mortazavi, "Pulse2AI: An Adaptive Framework to Standardize and Process Pulsatile Wearable Sensor Data for Clinical Applications", Open Journal of Engineering in Medicine and Biology (OJEMB) 2023 (accepted on 03/03/2024)
- Phyllis M Thangaraj, Sumukh Vasisht Shankar, **Sicong Huang**, Girish Nadkarni, Bobak J Mortazavi, Evangelos K Oikonomou, Rohan Khera, "A Novel Digital Twin Strategy to Examine the Implications of Randomized Control Trials for Real-World Populations", Nature Medicine 2024 (submitted on 03/28/2024)
- Zhale Nowroozilarki, **Sicong Huang**, Rohan Khera, Bobak Mortazavi, "ECG Abnormality Detection in MIMIC-IV-ECG Data Using Supervised Contrastive Learning", Conference of IEEE EMBS (EMBC) 2024 (accepted on 04/15/2024)
- Zhale Nowroozilarki, **Sicong Huang**, Rohan Khera, Bobak Mortazavi, "Non-invasive Electrolyte Estimation Using Multi-lead ECG data via Semi-supervised Contrastive Learning with an Adaptive Loss", IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI) 2024 (submitted on 06/24/2024)
- **Sicong Huang**, Zhale Nowroozilarki, Yichen Tao, Rohan Khera, Bobak Mortazavi, "RhythmPulse: Remote Cardiac Monitoring via Single-Lead ECG Translation from Photoplethysmography", IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI) 2024 (submitted on 06/24/2024)

WORKSHOPS & SERVICES

IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI 2023) October 2023

- Workshop on Unraveling Challenges in Time Series Analysis with Open Source Tools for Digital Health Applications
- Judge of BHI 2023 Data Challenge Competition (Phase 2)

Research Experience for Undergraduates (REU) at Texas A&M University July 2023

- Towards automatic diet monitoring, Tutorial on Macronutrient Estimation with Machine Learning

AWARDS

IEEE-EMBS International Conference on Body Sensor Networks (IEEE BSN 2023), Boston, MA October 2023

- Student Travel Award

BHI 2023, Pittsburgh, PA October 2023

- Student Travel Award

SAE/GM AutoDrive Challenge Year 2 Competition, Ann Arbor, MI May 2019

- Third Place in Overall Competition

SAE/GM AutoDrive Challenge Year 1 Competition, Yuma, AZ May 2018

- **First Place** in Object Detection & Avoidance, **Second Place** in Overall Competition

SKILLS

Languages: **Python**, **MATLAB**, LaTeX, R, C++, Java, C#, JavaScript, SQL, Cypher, JMP
Tools/Packages: **Pytorch**, **Sklearn**, **Weights & Bias**, React, TF/Keras, LLM/GPT, Spark, Matplotlib, seaborn
Technologies/Frameworks: **Linux**, .NET, CI/CD, Scrum/Agile, AWS, Azure

*: equal contribution