Cheng Wan

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EDUCATION

Georgia Institute of Technology Aug. 2022 - Present

- ✓ School of Electrical and Computer Engineering
- ✓ Master of Engineering (in progress), Major in Electrical and Computer Engineering
- ✓ Statistical Machine Learning (A), Advanced Programming Techniques (A)
- ✓ GPA: 4.0/4.0
- ✓ Awards: Merit Student Scholarship @ Georgia Tech

Nanchang Hangkong University Sep. 2018 - Jun. 2022

- ✓ College of Information Engineering
- ✓ Bachelor of Engineering, Major in Communication Engineering
- ✓ Signal & Linear System (97/100), Information Theory and Coding (90/100), Object-Oriented Programming (91/100), Matlab Language (92/100), Microwave Technology and Antenna (93/100), Database Principle and Application (94/100), Computer Communication and Networks (92/100)
- ✓ GPA: 3.5/4.0 Rank: Top 5% (Ranked 1st in 2021-2022)
- ✓ Awards: Outstanding Scholarship @ NCHU for Top 10 (2020-2021 Academic Year)
  Outstanding Scholarship @ NCHU for Top 1 (2021-2022 Academic Year)
- ✓ Language skills**:** Mandarin (Native), English (TOFEL 108)

RESEARCH OUTPUT

Effects of Pulse Transit Time and Pulse Arrival Time on Cuff-less Blood Pressure Estimation: A Comparison Study with Multiple Experimental Interventions, 2023 EMBS Conference (Accepted)

*C. Xie, **C. Wan**, Yishan Wang, Dan Wu*, and Ye Li, *Member, IEEE**

Cuffless Continuous Blood Pressure Measurement Method Based on Multi-Parameter Feature Fusion [J], Journal of Integration Technology, 2023, 12(2):29-38

*X. Jin, **C. Wan**, C. Xie, C. Liu, D. Wu**

PROJECT EXPERIENCE

SIAT Internship Project of Chinese Academy of Sciences

Cuffless Continuous Blood Pressure Prediction Modeling based on Multi-feature Fusion

Project Leader Sep. 2021 - July. 2022

- As the lead of a collaborative project between the Shenzhen Institute of Advanced Technology of the Chinese Academy of Sciences and Huawei, supervised the collection of multi-parameter physiological signals data like ECG, PPG and ICG from over 30 volunteers.
- Gained insight into algorithm application models such as *Random Forest, BP neural network, RNN,* and *LSTM* for physiological monitoring after reviewing a corpus of over 60 relevant literatures.
- Analyzed these multi-parameter signals in the time, frequency, and nonlinear domains to identify effective features and extract blood pressure-related information. Our final modeling results achieved the AAMI standard and met the accuracy requirements for blood pressure prediction.
- Compared the prediction results of ResNet and U-Net models on different signal combinations and signal features. Research the difference in the prediction effect of PTT/PAT on blood pressure by comparing various algorithms. Our findings have been submitted to the *EMBC 2023 Conference*.

Learning Chess from Transformer-Based Language Model (Open source on my github)

Project Member Oct. 2022 - Sep. 2022

- Demonstrated that using chess as a testbed for evaluating language models' world state tracking capabilities offers valuable insights, contributing to the development and analysis of these systems.

- Employed chess notation to probe language models' understanding of the game and its rules, allowing for a systematic evaluation of their knowledge, which is a novel approach in this field.
- Showcased the Transformer-based language model(GPT2), outperforming RNN models in tracking piece locations and predicting legal moves when provided with sufficient training data; GPT-2 achieves an LgM Actual of 96.8% and an ExM Actual of 49.5%.

Image Processing Software Development Laboratory Project, College of Information Engineering
Project Leader Mar. 2021 - May. 2021

- Followed the tutor to learn machine learning and the basic content of deep learning and conducted computer vision (CV) learning to study target recognition and used the neural network to classify 4000 pieces of images through 50 training epochs, thereby constructing the image recognition network reaching the recognition accuracy of more than 85%.
- Independently took charge of developing five different MFC-based application programs of *Dialog-based Player Configurator, Dialog-based Message Teleprompter, Single-document-based Streaming Media Manager, Single Document View Background Settings, and Dialog-based Address Book* during the project.

China International College Students 'Internet+' Innovation and Entrepreneurship Competition
Project Leader May. 2020 - May. 2021

- Led the project *COVID-19 Regional Spread Prediction Model Based on Matlab* and collected data on the current stage diagnosis of the epidemic in China, and preliminarily study various algorithms. And compiled the results to a project paper in the end.
- Using *the Multidimensional Meta-Cellular Automata* model and a differential evolutionary algorithm, tens of thousands of magnitudes of data were processed. The innovation lies in using multiple parameters for algorithm fitting and visualization, which can clearly see the evolution of the process before, during and after the outbreak, and successfully design the outbreak and transmission mechanism of the epidemic in Qingshan Lake District, Nanchang.

The 14th College Students' Small Invention, Small Production, Small Creation' Innovation Project
Project Member Apr. 2019 - May. 2020

- Designed the automatic control system of the window based on an STC8 single-chip microcontroller in the project *Intelligent Control System for Doors and Windows* and was awarded as an *outstanding winner*.
- Designed a set of a system capable of realizing automatic window closing when it rains, or air quality is poor, automatic window opening for ventilation when the weather is good, and intelligent comparison of internal and external environment temperature and humidity through various sensors.
- Added a toxic gas detection function, a voice reminder function if the door is not closed when the person leaves the room, an automatic outdoor wind speed detection function, and daybreak and dark automatic opening-closing function for the system.

WORKING EXPERIENCE

Network Engineer Intern **ECCOM Network System Co., Ltd.** Jul. 2021 - Aug. 2021

- Exposed to after-sales technical field and pre-sales preparation, mastered the software such as 3CDaemon for configuration of server network ports and switch control, and completed the experiment of virtual machine wireless control Aps.
- Assigned to project support for CCNA network practice: Dispatched to the network warehouse of Tencent Ecological Science Park in Shenzhen to sort out and configure more than 120 switches and other devices of Tencent customers, empty some configurations to facilitate full use of old resources, check forms and review omissions, etc.
- Learned the preparation of bidding documents and acquainted with the overall framework of bidding documents and the technical bidding content.

SKILLS & SPECIALTY

Computer skills: Proficient in Pytorch, LaTex, Matlab, Python, C/C++ Language, SQL, ADS, HFSS, Maple, Quartus, Keil, Multisim, Proteus, etc.

Interests: Performance (self-directed and self-performed New Year's Party of the university), Various ball games, Singing (New Year's Party of the university), E-sports (Intel Cup Shanghai Champion)