Curriculum Vitae- Chongyan Chen

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Education

University of Texas at Austin, Austin, TX, 8/2020 – expected 5/2025
- PhD in Information Science, School of Information

University of Texas at Austin, Austin, TX, 8/2018 – expected 5/2020
- GPA: 3.96/4.0
- Research Assistant, 3/2019 – present
- Master of Science in Information Science, School of Information
- Courses: *Activity Recognition; Project in HCI; Machine Learning; AI in Health; Advanced Programming Tools; Algorithms; Virtual Environment.*

South China University of Technology, Guangzhou, China, 9/2014 - 7/2018
- B.Eng. in Information Engineering, School of Electronic & Information Engineering
- Courses: *C Language, Data Structures, Signals and Systems, Digital Signal Processing*

Research Publications

- Chongyan Chen; Chunhung Li; Chih-Wei Tsai; Xinghua Deng, *"Evaluation of Mental Stress and Heart Rate Variability Derived from Wrist-Based Photoplethysmography"*, IEEE ECBIOS, 6/2019. (Paper, Poster)
- Yi-Cong Huang, Wing-Kuen Ling, Chi-Wa Cheng, Chun-Hung Li, Chong-Yan Chen. *"Activity Recognition with Wristband Based on Histogram and Bayesian Classifiers"*. IEEE ICSIP, 7/2019. (Paper)

Honors and Awards

- Kilgarlin Fellowship, 2020-2024
- William and Margaret Kilgarlin Endowed Scholarship ($54,750), 2020-2021.
- Master Thesis-Dean's Choice Award finalist, 5/8/2020
- Best Conference Paper Award, IEEE ECBIOS, 6/2019. (Award)
- Winner in *Intro to Machine Learning* course VQA Answerability Competition, University of Texas at Austin, 4/2019
- First Prize Award: 311 Calls and 500 Cities Hackathon, University of Texas at Austin, 10/2018
- Outstanding Undergraduate thesis, South China University of Technology, 6/2018
- University third-class scholarship, South China University of Technology, 4/2018
- Honorable Mention Prize, Mathematical Contest in Modeling, 1/20/2017 – 1/24/2017

Technical Skills

- **Programming Languages:** Python, Kotlin, Java, C, C++, C#.
- **Artificial Intelligence:** Machine Learning; Deep Learning (LSTM, BERT, CNN, GAN, Explainable AI); scikit-learn, Keras, PyTorch, Tensorflow.

- **Web+ Mobile:** HTML, CSS, JS, PHP, jQuery, Ajax, React Native, Android (Java, Kotlin).
- **Backend + Systems:** Linux; Azure, Google Cloud, AWS; Docker.
- **Others:** SQL, NoSQL (MongoDB), Gephi, Git, MATLAB, Qlik, Unit Test/Jenkins, LaTex, Unity 3D, InDesign, Photoshop.
- **Design:** Sketch, InDesign, Photoshop.
- **Human Languages**: Mandarin; English; Cantonese.

Work Experience

Algorithm Engineer (Intern), HUAWEI, Shenzhen, China, 06/2019 – 08/2019
- Conducted URL pattern extraction using Regex, utilized md5 for page update recognition, and applied Naïve Bayes to recognize dead links.
- Detected keywords and compared text-similarity for real title extraction, employed DFS to reconstruct Xpath to extract text content, utilized Hash and Dynamic Programming to extract repeated node to extract web border.

Algorithm Engineer (Intern), Add Care Ltd, Shenzhen, China, 11/2017 – 3/2019
Phase1: Eating Gestures Monitor, 11/2017 – 3/2018.
- Trained CNN to detect utensils in videos, used Haar-like features and Adaboost to detect human faces, and tracked them using Kernelized Correlation Filter. Identified eating gestures by collision checking between the path of utensils and human faces.

Phase2: Predict Mental Stress Using Wrist-based PPG, 3/2018- 3/2019 (remote internship)
- Designed stress induction experiment. Collected, filtered ECG and wrist-based PPG signals and detected signal quality. Designed Peak Finding Algorithms for PPG and ECG.
- Calculated Heart Rate Variability to classify stress states. The overall Leave-One-Participant-Out accuracy of wrist-based PPG with 3 mins temporal window reaches 80%.

User Experience (Intern), INHEATER Science and Technology Company, Guangzhou, China, 11/2016 – 3/2017
- Conducted user modeling, requirement analysis, scene simulation of AI products.
- Generated evaluation standard and performed experimental tests. Provided enhancement of user experience. Designed information dashboards using Qlik. Wrote reports using InDesign.

Projects

VizWiz project, 3/2019 – present
- Developed the app with speech to text (DeepSpeech) and image quality detection algorithms.
- Question Answerability: Extracted features for visual question's answerability using OpenCV and Azure API; extracted text features using NLTK to predict answerability of a visual question.
- Studying Visual Question Answering and Image Captioning with external Knowledge (DBpedia, Reverse Image Search, and Image Search by Text). The results show that including external knowledge can largely improve the accuracy of VQA and show a possibility of answering "unanswerable" questions (marked unanswerable by crowd workers).

Knowledge Graph and BioBERT for biomedical research, 1/2020 – present

- Recognized biomedical name entity for PubMed dataset and COVID-19 44K dataset using BioBERT.
- Created two kinds of drug-centered knowledge graph (one is based on co-occurrence frequency and another is cosine similarity) using Gephi to recommend possible drugs for COVID-19.
- Built BioBERT tutorial, SQL tutorial, and Machine Learning tutorial for PubMed and MIMIC III dataset.

ByteMe, Full-Stack Development (Web+ ios+ Andorid), 9/2019 – 12/2019

- Developed ByteMe application for both Web (frontend: HTML + JS + Ajax; backend: Python + Flask) and Mobile platforms (React Native and Kotlin).
- Built, deployed and managed application using Google App Engine, wrote python Database API to handle MongoDB, developed navigation function, camera function, and user login function with Google Firebase. Implemented "NewByte" page with the AutoFill function using Food 101 classification model based on Google Inception V3 model and Azure API.

Understanding Health-related Information Searching Behavior Through Eye Tracking, 1/2019 – 4/2019

- Collected eye-tracking data (AOIs, TTFF, etc.) using Tobii TX300 eye-tracker and iMotions.
- Analyzed data using Kruskal-Wallis test, One-Way Anova and Mann-Whitney U Test. (Paper)

Activities Recognition in Self-Driving Car, 9/2018 – 12/2018

- Collected ten peoples' five activities to solve the take-over problem.
- Reduced individual differences. Built pose estimator to detect skeleton of people. Extracted secondary features to help classify similar activities. Ensemble them with LSTM. (Paper)

Text-based Emotion Analysis and Responses, 12/2017 – 5/2018

- Trained emotion predict model based on NPCC dataset. Applied the model to STC dialog dataset.
- Used Seq2Seq model based on Long-Short Term Memory with emotion embedding to decode response.

Students' Quality Development APP Design, 3/2017 – 5/2017

- Defined users' needs and designed prototype using Axure.
- Implemented a set of User Interface functionalities such as Menus, Tables, Panes.
- Realized login activity function based on SharedPreferences, activity fuzzy search function using SQL, and function for editing activity/user information.

Mathematical Contest in Modeling, 1/20/2017 – 1/24/2017

- Built Phantom Traffic Jam Model to simulate traffic jam on highway with few intersections and accidents. Created Smart Driver Model with versions for human drivers and smart cars.
- Predict traffic condition with varied road density and smart car proportions.
- Built Global Decision Model to control smart car proportions and provide optimal route plans for both human drivers and smart cars. (Paper)

Remote-control submarine design based on underwater acoustic communication, 12/2015 – 10/2016

- Conducted serial communication between controller and PC, socket communication between PC and vehicle with a well-designed user interface using C++, C# and MFC.
- Designed and optimized self-starting and online upgrade system.

Presentations

Oral and poster presentation at IEEE ECBIOS, Okinawa, Japan, 6/2/2019

Extracurricular activities

Painting, 2001 – present: Proficiency in Sketch and traditional Chinese painting.

Volunteer at SXSW, 3/8/2019 – 3/17/2019: Volunteer on Conference and Exhibition crews.

Volunteer teacher, 8/2015 – 9/2017: Served as Art teacher in Guangning County and ran Official WeChat Account of Young Volunteers Association during summer break. Continue to mentor two students.

Video director, 9/2015 – 11/2015: Made the opening video for the 70th anniversary of the Students' Association Union and the video for the Young Volunteers Association to appeal for more volunteer teachers.

Class president, 9/2014 – 9/2015: Lead our class and won the first prize in the departmental Show.

Volunteer organizer of Book Corner, 8/2011 – 3/2015: Led 16 volunteers to appeal to bookstores and schools to donate and recycle books for K-12 students in the New Teachers Village.