Jiachen Li

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EDUCATION

Beijing University of Posts and Telecommunications (BUPT), Beijing Sept 2015 – Jul 2019

- Bachelor of Engineering in Electronic Information Science and Technology
- **Major GPA: 90/100 (3.81/4.0)**, Overall GPA: 3.74/4.0, **Second & third year GPA: 3.92/4.0**
- Rank: 12/113 (Top 3 in female)
  - **Core Courses**: Electric Circuit Aided Design and Simulation 96, Advanced MathematicsA 93, Fundamentals of Circuit Analysis 91, Electronic and Circuit Foundation 95, Signals and systems 96, Digital Circuits and Logic Design 92, Electromagnetic Fields and Waves 96, High Frequency Circuits 93.

University of California, Berkeley Jan 2018 – May 2018

- CS 61C Great Ideas in Computer Architecture (Machine Structures) Prof. John Wawrzynek, Prof. Nicholas Weaver
- INFO 265 Interface Aesthetics Prof. Kimiko Ryokai
- IEOR 170 Industrial Design and Human Factors Prof. Carisa Harris Adamson
- EL ENG X436.2-013 Java: Discovering Its Power Prof. Carl Limsico

PUBLICATION

- Ying Sun*, **Jiachen Li***, Yiwen Wei, Haibin Yan. Video-based Parent-Child Relationship Prediction, *IEEE VCIP, 2018.*

RESEARCH EXPERIENCE

Let's play Chinese abacus: mathematics learning approaches inspired by cultural heritage(MCU, C, C#)

Mar 2019 – Jul 2019

Advisor: Prof. Fei Lyu, School of School of Digital Media & Design Arts

- Designed and developed a physical interaction system for auxiliary abacus learning, which uses visual counting tips and feedback, using a natural interaction method.
- Based on the current status and advantages and disadvantages of abacus, the topic will use sensors and other means to design a new type of electronic abacus, record the activity status of the beads and fingers in real time, and establish a connection with the software platform to create a human-computer interaction mode.
- Reduced the cost of children's learning abacus, and to overcome the difficulty of conversion between abacus and vertical calculation through this interaction, in the process of abacus learning, children are subtly studied the principle of mathematical calculation.
- After a month of field research, the system was found to significantly improve the efficiency of children's learning abacus and also received positive feedback from teachers and children.

Video-based Parent-Child Relationship Prediction (C++, Matlab) Jul 2017 – Jul 2018

Advisor: Prof. Haibin YAN, School of Automation, BUPT

- Built Familyship Face Videos in the Wild (FFVW), a novel video-based face recognition database with blood relationship labels; parsed video data by family of father, mother and children from raw data with tree-structure
- Proposed an advanced process of face recognition for blood relationship, including extracting key frame, face detection, face alignment and feature recognition using convolutional neural network (CNN).
- Used 60% of dataset for training, 20% for validation, and 20% for testing, and improved the classification accuracy from 83.06% to 89.42%.
- Conducted sensitivity analysis for video condition (e.g. different intensity of light) and algorithm settings.

Heterotypic Unintentional Touch Detection (Arduino, Python, Matlab) Jul 2018 – present

Advisor: Prof. Chun YU, Pervasive Interaction Lab, Department of Computer Science and Technology, Tsinghua University

- Designed unintentional touch detection algorithm based on 125Hz capacitive sensing signal on phone.
- Used flood-fill algorithm and ellipse fitting techniques to detect touch, and recorded touch count and area.

- Extracted temporal sequences of the max-capacitive point in every core area; performed FFT analysis and generated the frequency spectrum; discovered disparity of spectrum distribution for intentional and unintentional touches.
- Evaluated our algorithm by both simulation and experiment, and achieved good accuracy.

"Dolphin Know": Psychological APP Helping University Students With Mental Problems Jul 2018 – present

Advisor: Prof. Meiyu LV, HCI & Intelligent Design Lab, School of Digital Media & Design Arts, BUPT

- Designed an APP aiming to assist modern university students to recognize, identify and solve their mental problems.
- Studied several mental models of stress appearance and releasing, and finally selected 2 most fitted models for our university students by survey and data analysis.
- Implemented several functions in the APP including mini game and healing music to release user's stress.
- Improved APP performance by optimizing the interaction between users and APP.

COURSE PROJECT

Stress App Design (Illustrator, Indesign) Feb 2018 – Mar 2018

Advisor: Prof. Kimiko Ryokai, School of Information, UCB

- Designed UI and wearable for an app that detects the stress level of people and helps them release stress.
- Used different features such as layout, weight, typography and color to distinguish two stress levels: normal and stressed situation.
- Used waveform with timeline to record the stress level of a person in one day; allowed users to add spots to record special events for waveform fluctuations.
- Improved the usability of buttons on smart phone based on both heuristic evaluation and usability testing.

A Self-Balance Car (VHDL, soldering, Breadboard) Sep 2017 – Oct 2017

Advisor: Prof. Yongmei ZHANG, School of Electronic, BUPT

- Designed, fabricated and soldered a two-wheeled self-balance car which behaved well in keeping balance, moving forward, turning left/right and stopping.
- Adjusted the leaning angle offset per second, PID parameters (KPZ, KIZ, KDZ) and speed in order to keep balance or move forward without falling to the ground.
- Proposed and implemented a novel algorithm for turning left and right; let one wheel move forward and the other backward to avoid risk of falling; changed deviation angle smoothly for 90-degree turns to allow adjustment.

IOS-Health Calculator (iOS obj-c) Apr 2017 – May 2017

Advisor: Prof. Dafa PAN, Department of Computer, BUPT

- Accomplished a multiple screen iOS calculator to count BMI, calculated BF% and provided health instruction with graphical interfaces.
- Based on obj-c, used ios platform (pure coding mode), and realized functions including multiple page visualization, and jumping and returning pages; the calculator exhibits a good error-tolerate rate.

HONORS & AWARDS

2016-2017 First-Class Scholarship Oct 2017
Outstanding Peer Tutor (10/120) Jun 2017
Outstanding Student (5/120) Jan 2017
'Our Classroom' Wall Design Competition: First Prize (1/400) Jun 2016

OTHER SKILLS

Circuit and Signal: MCU(Arduino), VHDL, Logisim, Multisim, ADS Schemetic, Synopsys, Quartus II
Computer Languages: C/C++, HTML & CSS, java & JSP, Matlab, python, ios obj-c & swift, unity
Design: Photoshop, Indesign, Illustrator, Fusion360
English: TOEFL iBT 107 (Reading 27, Listening 28, Speaking 25, Writing 27)
GRE Verbal 154, Quantitative 170, Analytical Writing 3.0
Interest: Photography, Crafts, Drawing, Music, Stray dogs and cats rescue, Travelling