

Simin Zhai

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EDUCATION

Boston University <i>Master of Science</i> <ul style="list-style-type: none">• Major: Electrical and Computer Engineering	Boston, America 08/2017-Present
Beijing Jiaotong University <i>Bachelor of Engineering</i> <ul style="list-style-type: none">• Major: Electronic Science and Technology, Cumulative GPA: 3.42/ 4.0, Junior-Year GPA: 3.90/ 4.0• Scholarships: 2015-2016 Academic Improvement Scholarship, Social Practice Excellence Scholarship, Literature and Art Activity Excellence Scholarship, Physical Training Advanced Individual Scholarship, First-class Team Collaboration Scholarship	Beijing, China 09/2013-06/2017

RESEARCH & PATENT

CT Image Registration <i>Independent Researcher</i> <ul style="list-style-type: none">• Graduation project• Compared the different times of CT images of patients with temporomandibular disorder• Made image denoising, transformation and registration• Investigated the pathogenesis of temporomandibular disorder• Came up with tailored treatments to individual patient	Beijing, China 12/2016-06/2017
Automobile Vision System Development <i>Research Assistant</i> <ul style="list-style-type: none">• National Science Foundation Project• Established models on MATLAB (detectMSERFeatures) to analyze pit information collected by vehicle visual device• Wrote connected region detecting and filling algorithms for a system for real-time traffic sign detection, tracking, and recognition• Applied image color extraction and color space transformation tools, image binary transform, dilation and erosion theories to process digital images• Extracted information from images using C++ to produce numerical information	Beijing, China 06/2016-08/2016
Piano Tuner <i>Independent Researcher</i> <ul style="list-style-type: none">• Designed a piano tuner to analyze piano music signals and give adjustment suggestions• Used BJTU-DSP5502 to make a piano tuner and built standard audio archive on “3.3FFT” CCS engineering template• Wrote FFT algorithms to process original signals and pin horizontal ordinate (frequency values) of spectrum peak on frequency spectrum, and compare frequency values of original signals with frequency in audio archive to calculate deviation value• Implemented algorithm simulation on MATLAB and applied verified algorithms to CCS platform using C	Beijing, China 07/2016
Sleep Quality Analysis based on Data Collected by Bluetooth ECG Monitor Clothing <i>Research Project Leader</i> <ul style="list-style-type: none">• National College Student Innovation Excellence Project• College Student Innovation Project Exhibition – Beijing Jiaotong University Representative Project• Third Place in “Nokia Cup” Innovation Competition• Patent number: CN201620738681.6• Made fabric electrodes and put sensors on clothes to implement data collection for extended data collection• Programmed to analyze digital signals collected from serial port based on communication protocol• Applied wavelet transformation to eliminate influences of high-frequency noise and baseline shift on signals;	Beijing, China 03/2015-03/2016

- Reconstructed R peak based on the signals and located R peak by first-order derivatives and Hilbert transform
- Calculated heart rate based on R peak and evaluated sleep quality using both heart rate and acceleration velocity; Found relation of different sleep stages with heart rate standard deviation and threshold value
- Analyzed data and Wrote algorithms on Arduino to make sleep quality analysis
- Developed interface models to display real-time data on Processing

COMPETITIONS

National IEEE International Standard MicroMouse Maze Competition 03/2016-05/2016

- Developed stepper motor control by C language on IAR Embedded Workbench for ARM
- Successfully calculated the shortest path in a 16×16 arbitrary maze under IEEE International Standard
- Competed against other 14 teams and won the third place in the maze running

The Freescale Cup National University Students Intelligent Car Race 11/2015-03/2016

- Used Altium Designer to design PCB printed circuit board; Analyzed data collected by linear CCD image sensor
- Programmed in C language on IAR Embedded Workbench IDE; Tested programming codes on SCM K60
- Wrote road detection algorithms, steering control algorithms, and speed control algorithms
- Competed against other 96 teams and won the first place in the Intelligent Car Race

INTERNSHIP

Tesla (China) Headquarters Beijing, China

Intern of IT Department 05/2016-08/2016

- Responded to various queries and provided onsite and remote technical support
- Collaborated with helpdesk teams in the U.S., Europe and Hong Kong and attended weekly meetings
- Helped to resolve problems caused by the Tesla internal system global breakdown in July of 2016
- Updated SSD for 80% employees in Beijing to enhance work productivity and efficiency

BTV Beijing TV Station Beijing, China

Communication Coordinator 07/2017-08/2017

- Helped the director to design the stage and the form of show
- Did translation for the celebrities from USA and Europe
- Engaged in communicating with people in different parts of the TV shows

EXTRACURRICULAR ACTIVITIES

Volunteer Teacher Program 07/2015

- Taught Chinese and English and promoted Chinese cultures to children in Zacatecas, Mexico

APEC Youth Week 11/2014

- Greeted foreign visitors, including former Prime Minister of Australia, Mr. Bob Hawke
- Granted Excellent Volunteer Award by APEC Committee

LAMP Music Association of Beijing Jiaotong University, Director 09/2014-09/2015

- Arranged performance at festival celebration parties and freshmen welcome parties
- Negotiated with sponsors for financial support and helped promote their marketing campaigns
- Awarded "2015 Star Association" by Beijing Jiaotong University

SKILLS AND INTERESTS

Language Skills: Native in Mandarin, Fluent in English

- Computer Skills:**
- Programming Languages:** HTML/CSS, C/C++, Bootstrap, MATLAB, Verilog, Python
 - Code Design Software:** Vivado, VC++, Visual Studio, CCS, MDK-ARM, IAR EWARM, Arduino
 - Circuit Simulation Design Software:** Multisim, Altium Designer, Cadence
 - Others:** VMware, Virtual Box

Personal Interests: Piano (Amateur Level-9), Classic Dancing (Amateur Level-7)
Solfeggio (Central Conservatory of Music Level-3)