SIQI(Rachael) WANG

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Education

Shanghai Jiao Tong University (SJTU), China

B.S.E in Electric Power Engineering and Automation *Sept. 2015 – June 2019(Expected)*

Overall GPA: ***86.6****/100* ***3.59****/4.0 Ranked* ***26****/134*

Major GPA: ***88.7****/100* ***3.70****/4.0*

National University of Singapore (NUS), Singapore

Exchange Program of 2017/18 SEM1 *Aug. 2017 – Dec. 2017*

- Curriculums: Database Systems (A) | Signal Processing Methods (A+) | Feedback Control System (A+) | Power Electronics (A+) | Power System Management and Protection (B) ***GPA: 4.7/5.0***
- Scholar of the Temasek Foundation International Leadership Enrichment and Regional Networking Programme (TFI LEaRN) 2017

Dartmouth College, NH, U.S.A

Research Intern in the DartNets Lab, Department of Computer Science *July 2018 – Oct. 2018*

Publication

- Ruibo Liu, **Siqi Wang**, Xia Zhou. Reconstructing Human Joint Motion with Computational Fabrics. *ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp), 2019.* (Received major revision and resubmitted)
- Yuwei Xiao, **Siqi Wang**, Siyu Chen, Bo Zhu, Xubo Yang. OmniGrid – New Grid Structure for Anisotropy Fluid. *ACM Transactions on Graphics (SIGGRAPH 2019).* (In preparation, deadline *Jan. 14th*)

Research Experience

OmniGrid – New Grid Structure for Anisotropy Fluid *Oct. 2018 - Present*

Researcher in Digital ART Lab, SJTU (Advisor: Prof. Bo Zhu and Prof. Xubo Yang)

- Put forward a new data structure called OmniGrid, which can capture and simulate complex anisotropic flow features. The key idea in this approach is to overlap tilted cells co-located with grid nodes adaptively and dynamically to capture the strong flux exhibited in non-axis-aliened directions.
- Built up the data structure of 2D & 3D Grid, devised functions of interpolation and solved *Poisson* equation with matrix-free-style preconditioned conjugate gradient algorithm in C++.
- Realized adaptivity by applying the data structure of Octree and visualized the scenario of smoke simulation.

Reconstructing Human Joint Motion with Computational Fabrics *July 2018 - Oct. 2018*

Researcher in Dartmouth Networking and Ubiquitous Systems Lab (Advisor: Prof. Xia Zhou)

- Devised experiments on the properties of conductive fabrics with a human-like robot arm, processed data of fabric sensors on MATLAB and drew characteristic curves to demonstrate the problems of relaxation and shifting on conductive fabrics.
- Accomplished the whole real-time system on Arduino IDE and Visual Studio in C, optimized the algorithm of calculating the extension of fabric sensors from raw data of signals collected by MCU (Adafruit Flora) using a Gaussian-Elasticity Model to reduce angular error in tracking joint angle to 9.69°.
- Developed the Graphical User Interface (GUI) for experiments in the evaluation part, devised the experimental setup of user study based on ground-truth Vicon and wrote part of the paper for *ACM Ubicomp, 2019.*

Design and Development of Smart Wearable Device (Smart Belt) *Feb. 2017 - Oct. 2017*

Researcher in Advanced Network Laboratory, ANL, SJTU (Advisor: Prof. Linghe Kong)

- Developed an Android App to demonstrate the performance of Smart Belt with 3 functions: Pedometer, Sedentary Reminder and Path Guide using Android Studio, which communicated with the development board (Genuino 101) inside the belt buckle by BLE.
- Optimized the algorithm of Pedometer in Java by counting the peaks of accelerometer signal and dynamically adjusting threshold, minimized the cumulative integral error from accelerometer and gyroscope by applying periodic calibration process.
- Devised electromagnetic units to reduce power consumption by harvesting electricity from human motions.

Optimization Design of the Capacitance Height Controller *Mar. 2017 - Apr. 2018*

Researcher in SJTU-Schneider Electric Joint Laboratory (Advisor: Prof. Qingjing Xu)

- Implemented the whole embedded system of Capacitance Height Controller based on ARM Cortex-M4 including Clapp Oscillator, PWM DC-Moter control and frequency acquisition module on Keil μVision in C and Altium Designer for PCB design.
- Improved the performance of DC-Moter by applying fuzzy-PID control algorithm to achieve an accuracy of $\pm$0.2mm with serial waveform display software VisualScope.
- Awarded the Excellent College Students Science and Technology Innovation Project, Shanghai.

Selected Course Project

Web-Database Application of Car Pooling (Instrutor: Prof. LEE Mong Li, Grade: A) *2017*
- Built a Web-database system for drivers, passengers and administrators using Bitami WAPP Stack and pgAdmin III which enables commuters to search or advertise car rides.
- Designed the User Interface of Car Pooling on Web-client Brower with HTML/CSS which allows browsing, searching of entries and ancillary data, sorting, advertising and bidding.
- Accomplished database management of creation, deletion, and modification of entries and ancillary data with advanced PostgreSQL queries and DBMS methods.

Smart Mirror with AI on Raspberry Pi 3B+ (Instructor: Prof. Shiwen Zhang, Score: 96) *2018*
- Employed Google Text-to-Speech API and Turing-Robot API to implement speech recognition, voice chat and video player in Python on Raspberry Pi 3B+.
- Realized face recognition with OpenCV in Python and developed an application that could wear hats & glasses on the screen for users.

CNN-Based Game 2048 with Supervised Learning (Instrutor: Prof. Bingbing Ni, Ongoing) *2018*
- Designed the activate function and data structure to train the Neural Network from self-played games using TensorFlow in Python, tested on Linux.
- Improved the average score of game up to 2048, which ran automatically by AI.

Course Design in Intelligent Instrument (Instructor: Prof. Xiaoyang Lai, Score: 98) *2018*
- Built a digital multimeter system via circuit welding, software controlling by C Language in Code Composer Studio (CCS) and hardware controlling by MSP430 Single-chip Microcomputer (SCM).
- Realized the functions of multirange DC/AC voltmeter with deviation of ±1%, frequency meter and multirange capacitance meter with deviation of ±5%.

Leadership And Activity

Deputy President of the Associations' Union, SJTU *Dec. 2017 - Nov. 2018*
- Organized varieties of activities for all the associations like SJTU Alumni Day
- Led a group to administrate the register, establishment and reimbursement of all the associations in SJTU

Vice President of Microsoft Student Club, SJTU *May 2017 - May 2018*
- Organized seminars, lectures and big events like Penta Hackathon 2016
- Talent resource management and fiscal administration

Inbound Scholar of TFI LEaRN Programme, NUS *Aug. 2017 - Oct. 2017*
- Volunteer in Radin Mas CC YEC BGM 2017–Project Smile and Parkinson exercise classes
- Presented at TFI LEaRN Young Asian Leaders Forum

Volunteer for Shanghai International Marathon *Oct. 2016*

Scholarship

- Hongyi Scholarship (10/3887, top 0.3% in SJTU) *2018*
- Scholarship of the Temasek Foundation International Leadership Enrichment and Regional Networking Programme (TFI LEaRN) (50 scholars in Asia) *2017*
- First-class Scholarship of Lee Fushou Fund (4/134, top 3% in EE Department) *2017*
- Academic Excellence Scholarship of SJTU (top 10% in SJTU) *2017*

Honor And Award

- Mathematical Contest in Modeling, Honorable Mention (twice, team leader, top 30% worldwide) *2017,2018*
- 1st Prize in the Undergraduate Mathematical Contest in Modeling,China (top 5% in China) *2016*
- Award for Outstanding Student Cadres (60/3887, top 1.5% in SJTU) *2016*
- Award for Excellent League Member (twice, roughly top 5% in SJTU) *2016,2018*
- Excellent Project Award – 1st Prize of School of Mechanical Engineering (1/70 in ME Department) *2016*
- First Place in High School Students Mathematics Contest in China (top 50 in each Province) *2014*

Standardized Test

- TOEFL iBT: 100 (Reading 25/Listening 28/Speaking 22/Wrting 25)
- GRE: 320 (V150+Q170+AW3.5)

Selected Skill

Language : Mandarin(Native), English(Fluent), German(Medium Proficiency)
Programming: C/C++, Python, Java, PostgreSQL, PHP, HTML/CSS, Verilog
Software : MATLAB, Android Studio, pgAdmin, Gephi, CCS, LabVIEW
Misc : Raspberry Pi, OpenCV, OpenGL, LaTeX, Linux, Gnuplot
Hobby : Piano, Cucurbit Flute, Folk Dance, Badminton