Pengzhi Yang

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EDUCATION

University of Electronic Science and Technology of China (UESTC)   **Chengdu, China**
Yingcai Honors College (Elite School of Top 2% Student)
B. Eng. of Electronic Engineering and Computer Science   *09/2016- 06/2020*
- Overall GPA: 3.92/4.0

University of California, Santa Barbara (UCSB)   **Santa Barbara, US**
Exchange Program in Computer Science   *03/2019- 06/2019*
- Overall GPA: 4.0/4.0

GRE: Verbal 156/ Quantity 170/ AW 4.0
TOEFL: Reading 27/ Listening 26/ Speaking 25/ Writing 25/ Total 103

PUBLICATION

Pengzhi Yang, Jiahao Liu, Hongchun Yang, Shaoyi Wu, Baohua Teng. **Magnetic Field Energy of Two Parallel Current-carrying Straight Wires**[J]. **Physics Bulletin**. 2019(7): 9-13.

RESEARCH EXPERIENCES

Dartmouth Reality and Robotics Lab, Dartmouth College   **Hanover, US**
The research group directed by A. P. Alberto Quattrini Li from Dartmouth College, studies topics at the intersection of computing and physical reality, including robotics, 3D fabrication, sensing and augmented reality.
__Undergraduate Research Assistant__, Advisor: A. P. Alberto Quattrini Li   *06/2019- present*
- **Underwater Robot Obstacle Avoidance**
  - ➢ Trained the Fully Convolutional Residual Network (FCRN) to predict the depth information (RGBD) from a single RGB image with the NYU dataset (preprocessed according to underwater environments).
  - ➢ Trained the Dueling Double Deep Q network (D3QN) in well-designed Gazebo worlds to facilitate the robot to move efficiently and avoid the obstacles.
  - ➢ Implemented and combined two mechanisms (method based on the neural networks along with the traditional method based on a single beam distance detection) to control the underwater robot, BlueROV2 in Position Hold Mode to realize the goal of obstacle avoidance.

Compiler for Simplified C++, UCSB   **Santa Barbara, US**
Advisor: A. P. Yufei Ding   *04/2019- 06/2019*
  - ➢ Course project of CS160, Translation of Programming Languages. The 6 projects include Scanner, Parser, Abstract Syntax Tree (AST), Type checking as well as Code generation.
  - ➢ Finished the project which comprised major components of an intact compiler for C++. All test cases parsed successfully with no errors and outputted valid X86 assembly code.
  - ➢ Got **A+** for the course.

Big Data Research Center, UESTC   **Chengdu, China**
Directed by Prof. Changsheng Li from UESTC, working on computer vision, machine intelligence and pattern recognition.
__Undergraduate Research Assistant__, Advisor: Prof. Changsheng Li   *11/2017- present*
- **Research on Deep Reinforcement Learning and Machine Learning**
  - ➢ Implemented typical algorithms of deep reinforcement learning (DRL) and machine learning through papers and online courses (CS231n and CS229 in Stanford, CS189 in Berkeley).
  - ➢ Trained intelligent agents to play Atari games with various of DRL algorithms.

Academic Projects, UESTC   **Chengdu, China**

Undergraduate Research Assistant, Advisor: Prof. Baohua Teng   *03/2018- 01/2019*

- **Research on Energy of Magnetic Field of an Ideal Physical Model**
  - ➢ Calculated the energy density distribution of magnetic field in two parallel long current-carrying straight wires based on the principle of vector synthesis of magnetic induction intensity.
  - ➢ Drew the magnetic field distribution and total magnetic energy curves under different current directions and different wire distances, gave a reasonable and intuitive theoretical description of the problem.
  - ➢ Published the research as the **first author** on *Physics Bulletin*.

Advisor: Prof. Jianhao Hu   *04/2018- 07/2018*

- **Development of an Eight-Stage Pipelined MIPS Processor**
  - ➢ Implemented a 32bits CPU based on the gate-level circuit in Verilog. It contained the main parts of a fully functional pipelined CPU.
  - ➢ Devised and embedded deep pipeline into the ALU part. Implemented optimized Fast Fourier Transform Algorithm (FFT) on the processor in the simulation environment and tested the whole project on FPGA.
  - ➢ Won **1st place** in the Efficiency Competition of all the teams.

Team Leader, Advisor: Senior Engineer Xiaoning Li   *03/2018- 09/2018*

- **An Innovative Practical Mini Catamaran**
  - ➢ Designed the catamaran in SolidWorks and 3D printed it. With infrared control, it was able to accomplish simple works such as water surface refuse collection.
  - ➢ Completed the business plan for the project. The whole project was awarded as **Excellence (top 10%)** in the **College Students Innovation and Entrepreneurship Competition** (2018) of UESTC.

Advisor: Lecturer Zhongsheng Huo   *09/2017- 12/2017*

- **Simulation of the Computer Mainframe Case Heat Dissipation**
  - ➢ Built a computer mainframe case in Flotherm. According to the thermodynamic theory and the simulation results, adjusted the structure of the whole case and the parameters of the accessories and kept the temperature of three monitored points below 90 ℃.
  - ➢ Proposed an original design of the thermal conductivity structure and the system got rather high performance.

SKILLS

- **Programming Languages:** Python, Verilog, C, C++ and MATLAB.
- **Expertise Qualities:** Circuit Design (Vivado and Multisim), Robotics Tools (Gazebo, RViz and QGroundControl), Mathematics Tools (Mathcad and MathType), Industrial Design and Simulation (Flotherm and SolidWorks), Multimedia Production (Adobe Illustrator, InDesign, Lightroom and Premier) and other Software Tools (MobaXterm, Wireshark, Jupyter and Latex).

HONORS&AWARDS

- Merit Student Scholarship in UESTC (top 10%).   *09/2017, 09/2018, 10/2019*
- Shiqiang Scholarship (top 5%).   *10/2018*
- Second prize of English Speech Contest in UESTC.   *06/2018*
- Outstanding Volunteer.   *10/2017*

OTHERS

- **Head of Weiai Volunteering Education Team:** Organized the volunteering activities as the team leader in Zhongjiang County, Sichuan for 13 months. Was responsible for the donation as well as team members' safety in the rural areas. Taught the kids Chinese poems and history during the summer in 2017.
- **Short Period Internship in H. k. Insurance Company:** Drew up an insurance service plan for a specific case from the Manulife Financial Corporation in Hong Kong. Got Excellence Award. Our team won **2nd place**.
- **Personal Hobbies:** Handcrafting, Traveling, Swimming, Photography, Biking, Diving and Movies.