Yutao ZHOU

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EDUCATION

University of California – Santa Barbara **Santa Barbara, CA**

BS *in Physics* *Sep 2018 – Dec 2021*

Overall GPA: 3.68/4.00

Dean's Honors List in 2021 Winter

ACADEMIC PROJECTS

Analog Electronics Laboratories **Santa Barbara, CA**

PHYS 127AL Course Projects *Mar 2021 – Jun 2021*

- Designed circuits to switch and amplify the input wave with a common-emitter amplifier, a differential amplifier, or an operational amplifier, respectively
- Fabricated a light-responsive buzzer using photosensitive resistors, LEDs, a 555 Timer chip, and capacitor resistors
- Built a circuit with photosensitive diodes to receive and record signals emitted by a LED bulb through alternating brightness as controlled by a 555 Timer chip

Introduction to Scientific Computing Laboratories **Santa Barbara, CA**

PHYS 129L Course Projects *Jan 2021 – Mar 2021*

- Mastered the Dictionary in Python, string processing, error handling, inheritance, and derived Julian Day based on the input
- Calculated the complex plane, drew a fractal image, and plotted a 3D image of a rotatable airy disk
- Practiced Discrete Fourier Transform, Fourier analysis algorithm, and drawing method
- Exercised Gaussian approximations, integral algorithm, and Monte Carlo simulation

Auroral Morphology Classification Based on Unsupervised Clustering **Beijing, CN**

Research Project at National Space Science Center, CAS (Advisor: Prof. Ziming Zou) *Aug 2019 – Sep 2019*

- Familiarized with the unsupervised clustering algorithm, KNN algorithm, and K-means algorithm
- Learned about calling the underlying algorithm in the SkLearn machine learning library
- Consulted literature on the morphological categories of aurora observation images in the whole sky and collected the data sources of aurora images
- Programmed to realize morphological clustering of aurora images

WORK EXPERIENCE

Beijing MeiQuan Science and Technology Development Co., Ltd. **Beijing, CN**

Part-time Administrative Assistant *June 2019 – Present*

- Read the products' CAD structure drawings and specifications, make optimization suggestions, participate in new products development, and introduce product features to potential clients
- Produce promotional materials remotely, such as the company's and products' brochures, using PPT and LaTeX

Research Institute of Nanjing Runnan Medical Electronics Co., Ltd. **Remote**

Part-time Analytical Assistant *June 2021 – July 2021*

- Collected clinical data in Python and drew signal waveforms, such as the electrocardiogram (ECG), electromechanical film ballistocardiogram (BCG), LC BCG, etc.
- Identified the signal peak through local maximization, calculated the peak distance, and measured the beat-by-beat cardiac cycle of ECG signal through plotting the waveform
- Learned to perform the cardiac cycle measurement using the Turning Point (TP) algorithm
- Extracted the beat-by-beat cardiac cycle of any BCG signal with or without the synchronous ECG signal reference

EXTRACURRICULAR ACTIVITIES

UCSB COLLABORATE **Santa Barbara, CA**

Student representative *Sep 2021 – present*

- Discuss with university officials on behalf of the MLPS Mathematical, Life, and Physical Sciences students about the appropriate allocation and improvement of teaching materials, methods, and support

UCSB Physics Circus **Santa Barbara, CA**

Core member *Sep 2020 – present*

- Deliver intriguing physics lectures to local elementary schools via Zoom
- Co-designed the Balloon Thermal Experiment and created the featured homepage on Home Experiments Website: https://circus.physics.ucsb.edu/home-experiments/

UCSB College of Letter and Science **Santa Barbara, CA**

Academic peer advisor *Mar 2020 – present*

- Advise peer students on educational plans and provide suggestions on course selection
- Operate Qless, a virtual walk-in platform, deal with progress checks and petitions, explain paperwork procedure and academic policies of the college, and address student concerns primarily caused by the pandemic
- Handle academic appointments, provide study plans, and answer potential consequences for specific academic actions

SKILLS & SPECIALTIES

Languages: Chinese Mandarin (Native); English (Proficiently fluent)

Computer Skills: Python, MATLAB, Latex, Auto Desk CAD, EasyEDA, MS Office series, Shell script

Hobbies: Playing golf, Bowling, Karting, Archery, Singing, Reading, Digging into Python programming, Learning intriguing knowledge on YouTube