Guanchen (Daniel) Du

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EDUCATION BACKGROUND

UC Santa Barbara 09/2024-(06/2028)

Four-year university; Major: Computer Science; GPA: 4.0

Tianjin Nankai High School 09/2020-06/2024

Grade 9-12

Knowledge-First Empowerment Academy 09/2022-06/2023

Grade 11 (AP Courses)

JOB SKILLS

Programming experience in C++ and Python

Familiar with all basic data structures

Hardware hands-on experience using Arduino

Familiar with commands in the Linux terminal and GitHub

Can flexibly use calculus, vector calculus, linear algebra, discrete math, and differential equations in practical problems

Strong in logic

Capable of using Microsoft Office effectively and skillfully

Strong leadership experience

Strong execution ability

Fast learner

Bilingual speaker of English and Mandarin

COMPUTER SCIENCE COURSES

ECE 3: INTRODUCTION TO PYTHON PROGRAMMING (Python) Freshman Year

CMPSC 16: PROBLEM-SOLVING WITH COMPUTERS I (C++) Freshman Year

CMPSC 24: PROBLEM-SOLVING WITH COMPUTERS II (C++ & DATA STRUCTURES) Freshman Year

CMPSC 40: FOUNDATIONS OF COMPUTER SCIENCE (DISCRETE MATH) Freshman Year

MATH COURSES

AP CALCULUS BC Grade 11

MATH 4A: LINEAR ALGEBRA WITH APPLICATIONS Freshman Year

MATH 4B: DIFFERENTIAL EQUATIONS Freshman Year

MATH 6A: VECTOR CALCULUS Sophomore Year

RESEARCH

2023 CIS (Cathaypath Institute of Science) Summer Program: Wireless Communications System Design

Grade 11

25 hours/week, 7 weeks/year

Advisor: Prof. Danijela Cabric, University of California, Los Angeles

- Learned the design and applications of wireless communications systems in 5G and Internet of Things technologies through one-week lectures and two-week field group research
- Collaborated with group members on a problem of precise location services for airport luggage management, detection, and recovery system; developed and implemented the localization algorithm based on Chan approach that can analytically solve the position based on several TDOA measurements

- Scored A+ and completed the joint paper *UL-TDOA Airport Baggage Positioning System Based on UWB and Wi-Fi Technologies*, which has been accepted by the 2023 2nd International Conference on Informatics, Networking and Computing (ICINC 2023)

ACTIVITIES

Arduino-based Automatic Delivery System February 6 – March 17, 2025

Group Leader

5 hours/week, 6 weeks

Advisor: Prof. Joao Hespanha

- Collaborate with two group members to develop an Arduino-based, wireless automatic delivery system using two Arduino boards, one for transmitting commands and the other for receiving and processing these commands on a mobile car platform. Designed for contactless delivery, the system included an ultrasonic sensor for item detection and a servo motor for automatic dispensing
- Showcased the project at the Science Fair held in ESB 1001 from 6 to 9 pm, March 13, 2025
- Gained hands-on experience in programming in C++ (Arduino IDE), teamwork, leadership, and hardware designing

SB Hacks XI January 11 – 12, 2025

Participating Member

24 hours

- Designed a game called Eggventure in a team of two students during a 24-hour hackathon at UCSB, involving participants from many California and Texas universities
- Utilized Python for the whole game programming, with libraries Pygame, Random, Time, and Math
- The folder was uploaded to GitHub, and the video on YouTube
- https://github.com/DanielDu-735/Eggventure_SB_HACKS_XI/tree/47b17db89a54e6041ab9b109b312332366ba0ef8/SB_HACKS_XI
- https://youtu.be/N81tsbvZ0oY?si=iBdUwvbhhPmKPEFh
- Demonstrated the game and code to several professors and senior managers from different companies
- Gained experience in teamwork and rapid development skills

Engineers Without Borders, UC Santa Barbara Freshman Year

Technical Member

2 hours/week, 25 weeks/year

- Working in a group, designing a charging table with an electricity supply from solar energy, combining hardware technology with software technology
- Gained experience in teamwork, compatible designing, circuit logic, and software programming experience

Society of Asian Scientists & Engineers, UC Santa Barbara Freshman Year

Technical Member

1 hour/week, 20 weeks/year

- Share the experiences of being an engineering student; help each other with both major-related and other interesting problems; discuss the blueprint of designing ideas within this society

Advocacy for All Animals, UC Santa Barbara Freshman Year

Member

1 hour/week, 30 weeks/year

- Effect changes through education, outreach, and advocacy for animal rights, health, and the environment

Student Union Grade 10-12

Secretary of Art Department

3 hours/week, 30 weeks/year

- Took charge of writing speeches and proposals for school activities; acted as the host of the chorus and drama festival; controlled the whole process

Leyu Sports Club September 2020 - Now

Badminton Player

10 hours/week, 52 weeks/year

- Play badminton for over ten years; actively take part in training and games at the club; share with new club members how to improve skills

Playing the Piano July 2013 - Now

Performer

8 hours/week, 52 weeks/year

- Play the piano for over ten years; take piano lessons for an hour each week; practice for an hour every day; actively participate in piano recitals and contests

COMMUNITY SERVICE

White Paper on 2022 High School Students' Public Welfare Practice Grade 11

2 hours/week, 11 weeks/year

- Finished research and planning projects; issued questionnaires to investigate the participation of middle school students in community service

Chinese Association of Life Care Grade 10

2 hours/week, 2 weeks/year

- Donated money and books for the poor students in Gansu Province; understood their education and life situation to offer support and encouragement

HONORS & AWARDS

- Dean's Honors (ENGR) Freshman Year
- National Gold (Division 2) in the Thirty-Seventh Annual AAPT PhysicsBowl Contest Grade 11
- National Top 10 (Division 2) in the Thirty-Seventh Annual AAPT PhysicsBowl Contest Grade 11
- Global Top 100 (Division 2) in the Thirty-Seventh Annual AAPT PhysicsBowl Contest Grade 11
- Certificate of Distinction of 2022 American Mathematics Competition Grade 11
- Certificate of Participation of 2023 American Invitational Mathematics Examination Grade 11
- AP Scholar with Honor Award Grade 11
- Second Place of 2023 Tianjin Nankai High School "Five Tigers Cup" Basketball Game Grade 11
- Top Gold of Math Kangaroo Grade 10
- Third Prize of 2022 Tianjin 11th Piano Competition Non-Professional Youth Group B Grade 10
- The Title of Outstanding Student Cadre at Tianjin Nankai High School Grade 10

- The Title of Elite Athlete at Leyu Sports Club Grade 10
- Recognition Award in Tianjin Nankai High School 2022 “Reading Inherits Culture and Book Nourishes Life” Campaign for Articles Grade 10