

Guankai Zhai

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EDUCATION

Cornell University, College of Arts and Sciences, Ithaca, NY

Expected May 2024

Bachelor of Arts, Computer Science

GPA: 4.07/4.30

Dean's List Fall 2021

Relevant Courses: Object-oriented Programming and Data Structures; Discrete Structures; Innovations and Rapid Prototyping; Data Structure & Functional Programming; Statistics and Probability; Digital Logic and Computer Organization; Linear Algebra; Optimization I; Introduction to Machine Learning; Learning with Big Messy Data

Certificate: IBM Data Science Specialization; DeepLearning.AI Neural Networks and Deep Learning Specialization; DeepLearning.AI Convolutional Neural Networks Specialization; Introduction to Aeronautical Engineering by TU Delft.

EXPERIENCES

Autopilot Engineer, Cornell University Unmanned Air Systems, Ithaca, USA

Oct. 2020-Oct. 2021

- Studied the MAVLink Messaging Protocol to find methods to receive in-flight aerodynamic data from the UAV, including airspeed, relative altitude, etc.
- Implemented the back end of the navigation light control system with over 500 lines of Python code, which utilizes in-flight information to generate optical signals for ground personnel automatically
- Modified the front end to add relevant control buttons to the MAVProxy ground control station software

Data Specialist, ByteDance, Beijing, China

Dec. 2020-Mar. 2021

- Collaborated with 15 engineers to design the overall backend logic of Gauthmath, a program to solve elementary school mathematical problems intelligently
- Prepared raw data using Python and Excel to train machine learning models
- Tested iterations of the product and gave feedback to the engineering team for their reference
- Conducted competitor analysis to determine the optimal commercialization plan, including pricing strategies, services offered, etc.

Independent Researcher, Pioneer Academics, Jining/Shanghai, China

June-Sept. 2019

- Conducted research on Cockpit Ergonomics with Stanford Professor Thomas Mullaney
- Composed a 26-page Final Report, in which the human-machine interactions during flight, the roles of automation, and the crew resource management issues were analyzed
- Published the final paper in the Pioneer Research Journal, an honor only 4% of participants received

PROJECTS

Software Engineer, Ludo Online Game, Beijing, China

Feb.-May 2021

- Designed with three engineers the architecture of an online Ludo Game with over 4000 lines of OCaml code, a functional programming language, and published the result online at <https://ludo-front-end.vercel.app>
- Implemented features such as auto-timing and the AI player to make the GUI Game fully functional
- Created a quiz-based tutorial that prepares new players for the main game

Co-founder/Analyst, Airline Charter Organization for Chinese International Students, Beijing, China

May-Aug. 2021

- Served as the connection between Cathay Pacific Airways and Cornell Chinese Students and Scholars Association to organize a charter flight from Shanghai to New York
- Carried out budget analyses with Excel to determine optimal ticket prices for each cabin class
- Helped over 300 students safely travel back to campus under the COVID-19 pandemic and relevant international travel restrictions

SPECIALIZED SKILLS

Object-Oriented Programming, Functional Programming, Feedback Control, Exploratory Data Analysis, Java, Python, SQL, R, OCaml, Microsoft Office, Machine Learning, Data Visualization, ROS, Arduino

AWARDS

YK Pao School Top 1% Full Scholarship

May 2020

PhysicsBowl, Division I Global Top 100 (Ranking 26)

Mar. 2019

Future Business Leaders of America, Marketing Essay Top 2 Teams in China

May 2019

PUBLICATION

G. Zhai, *Cockpit Instruments: a Historical Study of the Ergonomic Considerations in Aircraft*, The Pioneer Research Journal, 2019.