

## Yufan (Bruce) Zhang

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### EDUCATION

#### Duke Kunshan University (DKU) / Duke University (Duke) Dual Degree Undergraduate Program

May 2023

*B.S. in Data Science (by DKU)*

Kunshan, China

*B.S. in Interdisciplinary Studies (Data Science, by Duke)*

• Cumulative GPA: 3.74/4.0 Major GPA: 3.91/4.0

• Selected as Teaching Assistant for COMPSCI 201 (Data Structures) and ECON 101 (Economic Principles)

• Key Courses: Data Structures A Algorithms and Databases A Machine Learning A Cloud Computing A+

### RESEARCH EXPERIENCE

#### HCI Blockchain Research Group, DKU

Mar 2022 – Present

*Supervisors: Prof. Xin Tong (Asst. Prof. of Computation and Design) and Prof. Luyao Zhang (Asst. Prof. of Economics)*

• Performed SQL to query 16k+ transaction records and architected a database of CryptoPunks NFT using MongoDB.

• Developed a dashboard containing 5 interactive visualizations about CryptoPunks transaction using Plotly and Dash.

• Crawled and conducted sentimental analysis on 100+ million tweets on the topic of ethical issues on NFT.

#### AlphaFold Research Group, DKU

Aug 2021 – Present

*Supervisor: Prof. Huansheng Cao (Asst. Prof. of Environmental Science)*

• Developed a Graph Neural Network (GNN) based network using PyTorch to predict catalytic turnover numbers in Escherichia coli, which achieved a increase in  $R^2$  of 14% than the existing model.

• Achieved dimensionality reduction of 1.7TB of output data from AlphaFold 2 by implementing Convolutional Autoencoders.

#### Interdisciplinary Data Analysis Project, DKU

Jan 2022 – Jul 2022

*Supervisor: Prof. Peng Sun (Asst. Prof. of Data Science)*

• Built a GAN-based model using PyTorch to achieve font style transfer between arbitrary languages in a few-shot learning fashion, which generates the most plausible images comparing to the existing methods.

• Designed a novel language complexity-aware skip connection to adaptively adjust the structural information to be preserved.

#### Institute of Computing Technology, Chinese Academy of Sciences

Jul 2021 – Aug 2021

*Supervisor: Prof. Shuhui Wang, Professor*

• Enhanced the CycleGAN's performance on image style transfer by developing a novel category loss for generating images with better visual quality.

• Presented the proposed model to the program supervisor with an oral presentation and a technical written report.

### PUBLICATIONS & CONFERENCES

• Zhang, Y., Man, J., & Sun, P. (2022). *MF-Net: A Novel Few-Shot Stylized Multilingual Font Generation Method..* (Accepted by ACM Multimedia 2022)

• Zhang, Y., Chen, Z., Zhang, L., & Tong, X. (2022). *Visualizing Non-Fungible Token Ethics: A Case Study On CryptoPunks.* (Accepted by ChinaVis 2022)

• Chen, Z., Zhang, Y., & Zhang, L. (2022). *Blockchain Network Analysis on Liquity.* (in preparation)

### PROFESSIONAL EXPERIENCE

#### SciEcon CIC (an NPO in UK)

Oct, 2021 – Present

*Creativity Chair, SciEcon Inaugural E-board*

• Built static websites for SciEcon Research Incubator Program and deployed the websites on Inter Planetary File System (IPFS).

• Developed and executed brand communication strategy across all platforms (digital multimedia, marketing/sales materials).

#### COMPSCI 201 Teaching Team, DKU

Jan 2021 – Mar 2021

*Teaching Assistant*

• Developed 10+ Java programming exercises covering topics including OOP and data structures.

• Lectured 120 min-lab sessions and hold office hours to answer 30+ students' questions.

#### Office of China Enrollment Management, DKU

Sep 2020 – Jun 2021

*Student Assistant*

• Utilized Python and Excel to document, clean and analyze graduate data from 80 high schools in China.

• Arranged campus tours and enrollment information sessions.

## **SKILLS**

- **Programming Languages:** Python, Java, C++, MATLAB, JavaScript, HTML, CSS
- **Machine Learning:**
  - **Tools:** PyTorch, XGBoost, scikit-learn, keras
  - **Methods:** Basic Machine Learning (linear regression, decision tree, SVM), Computer Vision (CNN, GAN, YOLO series), Graph Deep Learning (GNN, GAT), Others (VAE)
- **Data Science:**
  - Data Acquisition: MySQL, Hadoop, Spark
  - Data Scrubbing: Pandas, NumPy
  - Modeling: Machine Learning,
  - Visualization: Plotly, Tableau, D3.js
- **Miscellaneous Technologies:** Linux, Git, Conda, Slurm, Docker, ArgoCD, Flask, OOP, APIs, Excel
- **Mathematics Fundamentals:** linear algebra, calculus, statistics, numerical analysis
- **Digital Design:** Adobe Creative Cloud Suite (PS, PR, AI, LR), DaVinci Resolve

## **LEADERSHIP & SERVICE**

### **DKU Home, DKU**

Sep 2020 – Dec 2020

*Co-Chair of DKU Home (Kunshan High-Tech Zone)*

- Scheduled and orchestrated weekly volunteering activities with another co-chair.
- Hired weekly volunteers for volunteering activities at DKU Home (High-Tech Zone).

### **Crazy Chinese Club, DKU**

Sep 2019 – Sep 2020

*Co-Founder & Marketing Chair*

- Co-founded and operated the Crazy Chinese club with 300+ students joining that helps international students from 20+ countries learn Mandarin and experience Chinese culture.
- Managed branding of Crazy Chinese to promote club activities by designing related materials (e.g. posters)

### **Student Media Center, DKU**

Oct 2019 – Jun 2020

*Member of the Creative Design Committee*

- Participated in the co-branding between Duke Kunshan University and Suzhou Museum.
- Assisted to edit the 2020 Duke Kunshan University orientation welcome videos.

## **ADDITIONAL INFORMATION**

**Languages:** Chinese Mandarin (native), English (GRE 326)

### **Honors and Awards:**

- Meritorious Winner (2021 MCM/ICM Contest in Modeling)
- Silver Medal (iGEM 2021)
- Top 100 Team Mainland China (L'Oréal 2021 Brandstorm)

**Interests:** photography, music, digital arts, ultimate frisbee