Qixuan Wang

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EDUCATION

Northwestern University   **Evanston, USA**
Master of Science in Artificial Intelligence   September 2024 – Now

Duke Kunshan University   **Kunshan, China**
Bachelor of Science in Applied Mathematics and Computational Science   August 2020 – May 2024
- **Combined Cumulative GPA:** 3.64/4.0 (Dean's List: Fall 2020, Fall 2023)

Duke University   **Durham, USA**
Exchange Program   January 2023 – May 2023
- **GPA:** 4.0/4.0 (Dean's List with Distinction: Spring 2023)

PUBLICATIONS

- Italo Simonelli and **Qixuan Wang**. An Elementary Proof of the Law of Iterated Logarithm for Minima and New Extensions of the Borel-Cantelli Lemma. *Under Review*, 2022.
  Available at SSRN**;** listed on SSRN's Top Ten download list for Probability & Statistics eJournal

RESEARCH EXPERIENCES

Diffusion Probabilistic Models [Code]   **Durham, USA**
Supervised by Professor Jian-Guo Liu (Duke University)   May 2023 – December 2023
- Adopted the input perturbation method to the single image generation and proposed an improved version of the single image denoising diffusion model (SinDDM)
- Achieved better generated image quality compared to the original method and planned to apply the new algorithm to speech synthesis and text generation

The Sunflower Lemma   **Kunshan, China**
Supervised by Professor Italo Simonelli   June 2022 – December 2022
- Aimed to make an improvement of the existing lower bound for finite delta systems
- Pinpointed and corrected a mistake in a formula for calculating the lower bound in a paper by Harvey L. Abbott and got the correct lower bound in some cases

The Borel-Cantelli Lemma and the Growth Rate of Partial Maxima   **Kunshan, China**
Supervised by Professor Italo Simonelli   October 2021 – June 2022
- Presented a new, simple proof of the law of iterated logarithm for minima of uniform random variables and proved new extensions of the Borel-Cantelli Lemma
- Published a preprint on SSRN – An Elementary Proof of the Law of Iterated Logarithm for Minima and New Extensions of the Borel-Cantelli Lemma

PROJECTS

Bark Voice Cloning and Voice Cloning for Chinese Speech
- Integrated Bark voice cloning with SambertHifigan for Chinese speech and created an intuitive, easy-to-use user interface [Code]
- Received over 2,700 stars on GitHub; one of the Top 20 applications (sorted by trending) on Hugging Face
- Interviewed by *South Reviews*, a famous politics and economics magazine in China, and shared my thoughts on the recent development of AI speech technology [Article in Chinese]

ChatGLM2 Voice Cloning
- Enabled users to chat with any character they like in real time using large language models, talking face animation and voice cloning [Code]
- Received over 580 stars on GitHub

HANDS-ON ARTIFICIAL INTELLIGENCE EXPERIENCES

- **A content creator**: Produced over 40 videos showcasing applications of generative AI such as speech synthesis, large language models, and stable diffusion on bilibili, which is one of the most popular video-sharing platforms in China. My channel now has over **14k** followers and my videos have more than **1.2 million** views in total.

- **Open-source projects**: Developed numerous deep learning applications and all of them are open-source. My GitHub projects have received over **3.6k** stars in total. My speech synthesis project was one of the Top **20** applications (sorted by trending) on Hugging Face.

- **Entrepreneurship**: Founded TalkTalkAI, a startup offering cutting-edge text-to-speech and singing voice conversion services. My goal is to let everyone enjoy a better life and work more efficiently through human-centered AI. I have engaged in discussions with partners from venture capital firms Y Combinator China and ZhenFund about my startup project.

INTERNSHIP

Xiaomi AI Lab   **Beijing, China**
- Developed a cutting-edge text-to-speech model for Xiaomi's voice assistant   June 2024 – August 2024
- Fine-tuned the model on a large dataset, improving speaker similarity and naturalness
- Worked on data collection, cleaning, preprocessing of podcasts, videos, and online datasets

Innoscience IT Department   **Suzhou, China**
- Developed a Python program for yield testing and anomaly detection   July 2022 – August 2022

RELEVANT COURSEWORK

- Relevant courses taken at **Duke Kunshan University**:
  Introduction to Applied Statistical Method (R), Introduction to Data Science (Python), Introduction to Programming and Data Structure (Java), Linear Algebra, Probability and Statistics, Numerical Analysis (Julia), ODE and Dynamical Systems (Mathematica), Advanced Introduction to Probability, Abstract Algebra, Partial Differential Equations, Measure and Integration, Deep Learning
- Relevant courses taken at **Duke University**:
  Real Analysis (MATH 431), Statistical Learning and Inference (STATS 432)

TECHNICAL SKILLS

Programming languages: Python, R, Java, Julia, LaTeX, Markdown, Mathematica
Machine learning: PyTorch, TensorFlow, SciPy, Gradio
Data analysis: Pandas, NumPy, Matplotlib, SQL

TALKS

- **The Sunflower Lemma: Understanding Highly Regular Patterns in a Large Uniform Family**
  DKU Discrete Math Seminar
  November 24, 2023 [Video]

- **The Borel-Cantelli Lemma and the Growth Rate of Partial Maxima**
  DKU Discrete Math Seminar
  March 24, 2023 [Slides]

- **The Probabilistic Method: The Basic Method and the Local Lemma**
  DKU Discrete Math Seminar
  September 23, 2022 [Slides]

LEADERSHIP EXPERIENCES & SERVICE

- Founder of United Platform sponsored by DKU Innovation Incubator: From Fall 2021 to Spring 2022 [News]
- Vice President of DKU Soccer Association: From Fall 2021 to Spring 2022 [News]
- Director of Publicity of DKU Soccer Association: Spring 2021 [News]
- Played for DKU Varsity Soccer Team: From Fall 2020 to Fall 2022 [News]