

# Qixuan Wang

[qw103@duke.edu](mailto:qw103@duke.edu) | [GitHub](#) | [Home Page](#)

## EDUCATION

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### Duke Kunshan University

Kunshan, China

Bachelor of Science in Applied Mathematics and Computational Science

September 2020 – May 2024

- **Combined Cumulative GPA:** 3.637/4.0 (Dean's List: Fall 2020), **Major GPA:** 3.7/4.0

### Duke University

Durham, USA

Exchange Program

January 2023 – May 2023

- **GPA:** 4.0/4.0 (Dean's List with Distinction: Spring 2023)

## PUBLICATIONS

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- 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

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### Diffusion Probabilistic Models [[Code](#)]

Durham, USA

Supervised by Professor Jian-Guo Liu (Duke University)

May 2023 – Present

- 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 than 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

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### [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](#)] [[Demo](#)]
- Received over 1,500 stars on GitHub; one of the Top 20 applications sorted by trending on Hugging Face

### [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 480 stars on GitHub

### [Modeling the COVID-19 Epidemic with Ordinary Differential Equations](#)

Supervised by Professor Konstantinos Efsthathiou

- Discussed thoroughly the SIR (Susceptible-Infected-Removed) model for the spread of disease and some of its variants in epidemiology [[Report](#)] [[Slides](#)]
- Combined several variants of the SIR model to get a new model that takes more parameters into account

## TALKS

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

## TEACHING EXPERIENCES

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- Tutor in **Real Analysis** (MATH 308): Spring 2023
- Tutor in **Probability and Statistics** (MATH 206): Spring 2023, Fall 2023
- Tutor in **Probability and Statistics** (MATH 205): Spring 2022, Fall 2022, Spring 2023, Fall 2023
- Tutor in **Introduction to Applied Statistical Methods** (STATS 101): Spring 2022

## LEADERSHIP EXPERIENCES & SERVICE

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- 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](#)]

## DEMOCRATIZATION OF ARTIFICIAL INTELLIGENCE

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- **A content creator:** Made more than **30** videos about how to use various applications of generative AI, such as speech synthesis, stable diffusion, and large language models on bilibili – one of China's most popular video-sharing platforms. My [channel](#) now has about **9k** followers, and my videos have over **600k** views in total.
- **Open-source projects:** Built many deep learning applications, all of which are open-source. My [GitHub](#) projects have received over **2.2k** stars in total. My speech synthesis [project](#) was one of the Top **20** applications sorted by trending on Hugging Face.
- **Entrepreneurship:** Worked on a startup project named [TalkTalkAI](#). My goal is to let everyone enjoy a better life and work more efficiently through human-centered AI. I have discussed my startup project with the partners of two venture capital firms (**Y Combinator China** and Panda Capital) and collaborated with other AI startups actively.

## INTERNSHIP

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|---|-------------------------|
| <b>Luoyang Electrical Energy Storage and Transformation System Co., Ltd.</b>          | <b>Luoyang, China</b>   |
| • Participated in the development of a high-energy-density lithium-ion battery system | May 2022 – July 2022    |
| • Worked on designing and testing a wide operating temperature power supply system    |                         |
| <b>Information Technology Department of Innoscience</b>                               | <b>Suzhou, China</b>    |
| • Worked on a Python program for yield testing and anomaly detection                  | July 2022 – August 2022 |

## RELEVANT COURSEWORK

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- Relevant courses taken at **Duke Kunshan University**:  
Linear Algebra, Probability and Statistics, Numerical Analysis, ODE and Dynamical Systems, Advanced Introduction to Probability, Partial Differential Equations, Abstract Algebra, Measure and Integration, Deep Learning
- Relevant courses taken at **Duke University**:  
Real Analysis (MATH 431), Statistical Learning and Inference (STATS 432)

## TECHNICAL SKILLS

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**Programming languages:** Python, R, Java, Julia, LaTeX, Markdown, Mathematica  
**Battery engineering:** battery management systems, circuit modeling and simulation