SIYAO WANG

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Education

Cuiying Honors College(CHC), Lanzhou University(LZU)   Sep. 2019 - Jun. 2023

BSc with Honors in Mathematics and Applied Mathematic

- Candidate of China's Top-Notch Undergraduate Training Program—Cuiying Honors College

- Overall Score: 90.15/100.00, Rank: **6**/159 (Top **3**%)

- Related Course

  - Math: Mathematics Analysis(Advanced Calculus) (92), Advanced Linear Algebra (91,94, 1/160), Theory of Probability (88), Operational Research (98), Numerical Analysis I (99, 1/155), Elementary Number Theory, Statistical Inference, Real Analysis(Measure theory and Lebesgue Integral) (94, 3/157), Abstract Algebra (97), Mathematical Modeling (97, 1/142), Numerical Analysis II(Numerical Solutions of Differential Equations) (95), Introduction to Commutative Algebra (97), Differential Geometry (95)

  - CS: C Programming, LINUX Operating System and Python Language Programming (94), GPU Super-computing Algorithm and Parallel Technology(CUDA) (A+), MATLAB Programming

Honors and Awards

Contemporary Undergraduate Mathematical Contest in Modeling, Provincial First Prize (**2**/3000)   Feb. 2022

National College Students Mathematical Competition, Provincial Second Prize   Dec. 2021

COMAP's Mathematical Contest in Modeling, Meritorious Winner (Top **3**% globally)   May. 2022

First-class Scholarship for Outstanding Students, LZU, Ranked **4**/160   Dec. 2020

Outstanding Project of Summer Social Practice, Provincial Outstanding Recognitio   Feb. 2022

Men's 100m sprint in Lanzhou University Athletics Competition, Silver Medal (11"80)   May. 2021

Men's 200m sprint in Lanzhou University Athletics Competition, Bronze Medal (24"28)   May. 2021

Merit student recognition in Lanzhou University   Dec. 2020

Research Projects

Infectious Diseases Model Based on Dynamical System Model with Migration and Periodic Pulse Inoculation Effects

Project Member, advised by Prof. Wantong Li, School of Mathematics and Statistics, LZU   Feb. 2021 - Mar. 2022

- Proposed the SIVS model of two cities by adding the effects of periodic pulse inoculation and population migration to the traditional SIR model

- Obtained and visualized the numerical solution of the equation using MATLAB; divided the solutions into "disease-free equilibrium" and "endemic equilibrium" according to whether the disease will be extinct in the stable state

- Found the analytic solution for disease-free equilibrium; analyzed its stability using Lyapunov's second theorem

- Predicted the disease trends based on the model; provided practical strategy on the prevention and control of the disease

Shape Optimization of "FAST" Active Reflector panels Based on Target Planning and Particle Swarm Algorithm

Project Leader, advised by Lecturer. Yuewei Liu, School of Mathematics and Statistics, LZU   Oct. 2021

- Determined the ideal paraboloid position of the "FAST" active reflector panels in the operating state using space analytic geometry, according to the spherical position in the idle state

- Derived the actual working paraboloid position by constructing the target planning model under the constraints of the cable nodes' adjustment range on the panels; Invoked particle swarm algorithm to solve the model

- Applied the model to observe celestial body at a particular location and calculated the ratio of the reflected signal to the received signal of the receivers

- Awarded the **First Prize** of Contemporary Undergraduate Mathematical Contest in Modeling

Optimal Power Allocation Model for Different types of Cyclists

Project Leader, advised by Lecturer. Dongbin Jiao, School of Information Science and Engineering, LZU   Feb. 2022

- Fitted the power profiles (indicates how long a rider can produce a given amount of power) for different types of cyclists using the hyperbolic model after a thorough review of the literature on kinematics physics to characterize their unique ability

- Derived the ordinary differential equations for cyclists' power and riding velocity from the dynamic analysis of cyclists
- Developed and solved a planning model targeting the shortest time for 2021 Tokyo Olympic Time Trial course under the constraints of sharp turns velocity and sprint limits
- Tested the robustness and stability of the model by adding the influence of $\pm 3m/s$ wind velocity as well as calculating the time taken for the power distribution to deviate 10% from the ideal model
- Applied the model to team cycling races to analyze the time used in different team synergy modes
- Awarded as the **Meritorious Winne**r of the COMAP's Mathematical Contest in Modeling

More details about the projects can be found in [the project part of my homepage](#)

Skills

- Coding : C/LaTeX/Python/MATLAB(advanced), C++/Linux/UNIX(intermediate)
- Language : Mandarin(native), English, CET6: 548 (W: 173)

Leadership and Extra-curriculum

President of Student Union, Cuiying Honors College(CHC)   Sep. 2020 - Jun. 2023

- Coordinated the cooperation of **9** departments with **70** members of the CHC Student Union
- Hosted the annual national student innovation project defense venue, with the engagement of **100** students in CHC annually, contacted the judges in advance, maintained the order of the venue

Vice-Captain of Track and Field Team, LZU   Mar. 2021 - Aug. 2022

- Won **Silver Medal** of Men's 100m sprint in Lanzhou University Athletics Competition, 2021, reached the standard of **China National Second Level Track & Field Athletes** in 100m sprint. (11"72)

Voluntary Work

Volunteers of Gansu University Volleyball League   22hrs.

- Involved in the closing ceremony of the volleyball league as the closing flag bearer of LZU and guided students from over 50 universities in Gansu to their designated positions.
- Made preparation for the competition venue and provided regular supplies for more than 1000 athletes.

Cuiying Prestigious Figures Recording Voluntary Program   over 100hrs.

- Subtitled the accumulated 80mins. interview videos of figures who are prestigious professors or alumni in LZU.
- Documented and published to the stories of figures in LZU from all walks of life.