Yuhang Huang

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https://hastronaut.github.io

Education

- **Shanghai Jiao Tong University** — Shanghai, China
  Bachelor of Statistics — *Sept 2021 - Current*
  - **Overall GPA**: 3.7/4.3, (Rank 3/18)
  - **Selected Courses**:
    Math and Statistics: Probability Theory (A), Mathematical Analysis (A+), Linear Algebra (A), Stochastic Processes (A), Mathematical Statistics (A-), Regression and Linear Model (A-), Multivariate Statictics (A-), Scientific Computing (A+), Complex Analysis (A+)
    Computer Science: Statistical Software and Algorithms (A), Data Structures (A+), Principles and methods of program design (A-)

Research

- **Robust gradient estimation in two sample settings** — Shanghai, China
  Undergraduate researcher, supervised by Prof. Di Wang — *Apr 2024 - Present*
  - Appy SVD to covariance matrix of Huber ϵ-contamination model to iteratively eliminate noise effects and use Geometry median-of-means (Gmom) method to estimate gradient in heavy-tailed model.
  - Extend the method to sparse samples and generalized linear models, adopting the Iterative Hard Thresholding (IHT) algorithm to improve results.
- **Combinatorial Problems in the Realm of Quasi-Hereditary Algebra** — Shanghai, China
  Undergraduate researcher, supervised by Prof. Yue-hui Zhang — *May 2022 - May 2023*
  - Conducted simulated computation for the quasi-hereditary orders of Nakayama algebras, and discovered precise expressions of upper and lower bounds.
  - Utilized arrow diagrams to convert algebraic propositions into pure combinatorial challenges, employed combinatorial strategies to invent several methods to compute orders.
- **Data Analysis for Supplementary Diagnosis of Colorectal Cancer** — Shanghai, China
  Undergraduate researcher, supervised by Prof. Cheng Hua — *Sept 2023 - Nov 2023*
  - Developed a missing value imputation strategy using the K-Nearest Neighbors (KNN) model, efficiently addressing missing data scenarios for both discrete and continuous variables.
  - Built a robust prediction model utilizing the Random Forest algorithm and fine-tuned model parameters through gradient search optimization.
  - Applied feature engineering techniques to create new variables, significantly enhancing the accuracy and reducing the error rate of the prediction model.

Projects

- **Numerical Simulation of Stochastic Differential Equations** — Shanghai, China
  MATH4704 Stochastic Process — *May 2023*
  - Simulates Brownian motion and stochastic differential equations with Matlab, combine *Itô* theory to solve the coupling problems of multiple stochastic differential equations and further analyze the strength and compatibility properties of several parameters.
- **Optimized Design of Heliostat Field** — Shanghai, China
  CUMCM2023 A — *Sept 2023*
  - Established an optical loss model and a multi-objective optimization problem, introduced the Sequential Least Squares Programming (SLSQP) method to solve the problem.
  - Utilized initial layouts such as EB and DELSO to enhance convergence speed and accuracy, and make improvements with solarPILOT. GitHub Report

Honors and Awards

- Academic Excellence Scholarship of SJTU (top 10%) *2022,2023*
- Wu Wenjun scholarship (15 of School) *2022*
- Chinese Mathematics Competitions(CMC) (First Prize) *2023*
- China Undergraduate Mathematical Contest in Modeling (Second Prize) *2023*

Miscellaneous

- **Programming**
  - Proficient: Python (Pandas, NumPy, etc.), R, LaTeX
  - Familiar: MATLAB, C++, Linux, stan
- **Language**
  - English (fluent) CET6:563 TOEFL:102 (S24W26) , Mandarin (native)
- **Service**
  - Member of the Public Relations Department, School of Mathemetical Sciences *Oct 2022 - Feb 2024*
  - Member of Rong Chang Talent Program,Shanghai Rong Chang Public Welfare Foundation *May 2022 - Present*
  - Member of International Style of Ballroom Dance Team, SJTU *Oct 2022 - Present*