Pingyao Feng

Email: 12010136@mail.sustech.edu.cn
Homepage: annfeng233.github.io/AnnFeng233/
Phone: +86-13688490984

Education

- **Southern University of Science and Technology (SUSTech)** Shenzhen, China
  Honor Class in Mathematics and Applied Mathematics (Bachelor) *Sep 2020-Jun 2024 (expected)*
  GPA: 3.67/4.0; rank: 13/43

Paper

- **Topology combined machine learning for consonant recognition** (First writer, submitted) Available on arXiv: arxiv.org/abs/2311.15210

Research Experiences

- **New Adaptive Central-Upwind Schemes for Conservation Laws**
  Thesis *Oct 2023-Jun 2024 (expected)*
  Supervisor: Alexander Kurganov, from College of Science at SUSTech
  - **Stepped into numerical methods for hyperbolic PDE systems**: Studied different schemes and limiters, tried to develop new adaptive Central-Upwind schemes for conservation laws.
- **Topology combined machine learning for consonant recognition**
  Leader *Jun 2022-Jun 2023*
  Supervisor: Yifei Zhu, from College of Science at SUSTech
  - **Classified phonetic data using topological features**: Conducted classification of voiced/voiceless natural sound records, utilizing persistent homology to extract topological features to achieve a accuracy more than 96%.
  - **Developed coding and presentation skills**: Engaged in comprehensive programming code design employing Python and Matlab, with regular presentations and discussions to develop, refine, and assess the models.
- **Geometric visualization for moduli spaces of quantum mechanical systems**
  Assistant *Jun 2022-Mar 2023*
  Supervisor: Yifei Zhu, from College of Science at SUSTech
  - **Computed and visualized surfaces with singularity arising from condensed matter physics**: Computed distinguished curves of discriminant surfaces of high degree using Mathematica; got acknowledged in their paper.
  - **Participated and collaborated in an interdisciplinary exhibition**: Collaborated with technicians to produce 3D-printed models, developing the ability communicate with researchers from diverse interdisciplinary backgrounds.

Additional Experiences

- **iGEM: Engineered P. aeruginosa filamentous phage for biofilm-targeted therapy**
  Modeler *Jan 2023-Oct 2023*
  Supervisor: Liang Yang, from School of Medicine at SUSTech
  - **Conducted dry experiment**: Built up quorum sensing and population growth models for Pseudomonas aeruginosa theoretically to measure the feasibility of temperate phage therapy. Our team, SUSTech-MED, eventually got a gold medal in the 2023 competition.
- **Deep learning programming proficiency practice**
  Trainee *Jun 2023-Jul 2023*
  Supervisor: Di Wang, from Computer Science at King Abdullah University of Science and Technology
  - **Code Writing**: Get familiar with models and procedures in deep learning, built up Transformer model to predict time series.
- **Seminar on Riemannian geometry**
  Lecturer *Sep 2022-Jan 2023*
  Supervisor: Bochen Liu, from College of Science at SUSTech
  - **Presented topics in Riemannian geometry**: Acquired fundament in Riemannian geometry, introduced to topics such as Riemannian matrics, curvature, Jacobi fields, etc.
- **Microbiology lab work-study job**
  Assistant *Jun 2022-Aug 2022*
  Supervisor: Tao Dong, from School of Life Sciences at SUSTech
  - **Stepped into the biology laboratory**: Assisted group members to perform laboratory such as preparation of different mediums, cultivation of bacteria, employment of PCR and agarose gel electrophoresis, etc.
- **Seminar on computational topology**
  Lecturer *Feb 2022-Jun 2022*
  Supervisor: Yifei Zhu, from College of Science at SUSTech
  - **Introduced to computational topology**: Acquired fundament in computational topology and presented on various topics, for example, the appliance of computational topology inside musical data and deep learning.

Conferences

- **BIMSA workshop on digraph topology and GLMY theory** (Nov, 23, 2023 - Nov, 26, 2023) Conference concerns the appliance of GLMY theory in advanced technology fields, such as chemistry, biology, and complex networks.

Skills

- **English proficiency** TOEFL (MyBest): 100 (reading 27/ listening 26/ speaking 23/ writing 24)
- **Programming proficiency** Python(fluent), Matlab(fluent), Mathematica(fluent), Fortran(beginner)

Honors and Awards

- Gold medal in iGEM competition (Team: SUSTech-Med), 2023
- Third Prize Scholarship for Excellent Students at SUSTech, 2022
- First Prize in Contemporary Undergraduate Mathematical Contest in Modeling, 2021
- Third Prize Scholarship for Excellent Freshmen at SUSTech, 2020