Ling Zhou

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SUMMARY

Math Ph.D. student working on topological data analysis (TDA) with strong problem-solving and communication skills; extensive research experience in theoretical and applied math problems, including developing algorithms.

SKILLS

- **Languages & Platforms:** Python, Jupyter Notebook, Latex, C++ (basic)
- **Python Libraries:** NumPy, Pandas, BeautifulSoup, Scikit-learn, Seaborn, Matplotlib, Ripser
- **Machine Learning:** regression, classification, clustering
- **Quantitative:** Statistics and probability, data analysis
- **Research:** 2x journal papers & 1 conference paper published, 10+ conference talks given and 3x talks scheduled, 2x paper reviewed, 1x conference co-organized, 2 years of organizing weekly research group meetings
- **Language**: Mandarin (native), English, Cantonese

PROJECT-BASED EXPERIENCE

Foursquare Location Matching - Erdős Institute's Bootcamp [GitHub] | ***Python: Scikit-learn, Seaborn*** 2022-05
Built a classification model to decide whether two given locations have the same point of interest.
- Exploratory data analysis, feature selection, and linear regression

Steaming-Hot - Erdős Institute's Bootcamp [GitHub] | ***Python: BeautifulSoup, Scikit-learn, Pandas*** 2021-05
Built various models to classify, predict and do survival analysis of Steam games and user data
- Scrapped monthly time series data over the past 10 years of 10k+games
- Exploratory data analysis for 70k+ features of 57k+ games, using scatter matrix and histograms
- Built a model to find similarity of the trends of different games, to provide advice for game developers

Are you Van Gogh's - Erdős Institute's Bootcamp [GitHub] | ***Python: Ripser, Pandas*** 2020-05
Built a model to determine if a painting is in Van Gogh's style or not.
- Applied topological data analysis tool to study the brush strokes of the digitalization of the paintings

PROFESSIONAL EXPERIENCE

Graduate Research and Teaching Assistant, *OSU* 2017-08 – now
- Strengthened the standard tool (persistence diagram) used in TDA. [ArXiv]
- Constructed a new tool for TDA using cohomology; developed an algorithm to compute it in poly-time. [Conference]
- Constructed a new tool for TDA using homotopy and obtained a tree-like structure out of it. [ArXiv]
- Proved neural networks with certain activation functions can be trained in a reduced parameter space. [Journal]

Graduate Research and Teaching Assistant, *HKUST* 2015-08 - 2017-07
- Constructed generalized Fourier transforms associated with the oscillator representation. [Journal]

ORGANIZATION AND LEADERSHIP EXPERIENCE

Topology, Geometry and Applications Graduate Student Organization 2020-03 - now
Co-president. Assisted in organizing graduate student seminars.

Network Data Analysis Group 2020-01 – 2022-08
Event organizer and manager of the website of this research group. Organized weekly group meeting and monthly joint seminar with another research group from Colorado State University.

1st Midwest Graduate Student Conference: Geometry & Topology meet Data Analysis & Machine Learning, 2019-06
Co-organizer. Co-organized a conference of 80+ graduate students and faculties from 20+ universities and companies.

SELECTED HONORS

Special Graduate Assignment, OSU	Spring 2020 & Spring 2023
Tibor Rado Graduate Fellowship, OSU	2017 - 2018
The 12th Epsilon Fun Award to Top Students, HKUST	2017
Din-Yu Hsieh Teaching Award, HKUST	2017
National Scholarship (China), twice	2013, 2014
National Endeavor Fellowship (China), twice	2011, 2012

EDUCATION

Doctorate of Philosophy | *Mathematics*, *GPA 4.0/4.0, The Ohio State University, Columbus, Ohio USA* 2017-08 - now
Master of Philosophy | *Mathematics,* *GPA 4.0/4.3, Hong Kong University of Science and Technology, HK* 2015-08 - 2017-06
Bachelor of Science | *Mathematics* and Applied Mathematics, *GPA 3.86/4.0, Sichuan University, China* 2010-08 - 2015-06