

William Huanshan Chuang

Curriculum Vitae

Department of Mathematics
San Francisco State University
1600 Holloway Avenue
San Francisco, CA 94132

wchuang2@mail.sfsu.edu

williamchuang.github.io

EDUCATION

San Francisco State University

M.A., Mathematics, Expected Spring 2022

Thesis: Hausdorff Dimensions and Limit Sets of Non-elementary Kleinian Groups

Advisor: Dr. Chun-Kit Lai

University of San Francisco

B.S., Mathematics, Fall 2018

Major GPA: 3.9/4.0

Minor in Computer Science

Graduated with Honors

RESEARCH INTERESTS

I am interested in analytic number theory, hyperbolic geometry, and arithmetic geometry.

ON-GOING RESEARCH

I am currently studying Patterson-Sullivan theory, and developing some visual method to estimate Hausdorff dimension of limit sets of Schottky groups with Dr. Chun-Kit Lai.

RESEARCH EXPERIENCE

San Francisco State University

The Computation of Exact Value of Hausdorff Dimension of Some Schottky Groups, June 2021 – present, publication in progress

Advisor: Dr. Chun-Kit Lai

OTHER INDEPENDENT PROJECTS

San Francisco State University

Independent Study: A Study on Prime Geodesic Theorem and Limit Sets of Schottky groups, January 2021 – May 2021

Write a document summarizing modern approach to prove the theorem with an emphasis on the growth rate based on the Hausdorff dimension of the limit set of the Schottky group.

Advisor: Dr. Chun-Kit Lai

San Francisco State University

Topology Project: A Study on Fundamental Groups, September 2020 – December 2020
Advisor: Dr. Emily Clader

San Francisco State University

Independent Study: A Study on Hom-Polytopes, September 2019 – December 2019
Combinatorics Project: A Study on Complex Simplex, January 2019 – May 2019
Advisor: Dr. Joseph Gubeladze

University of San Francisco

Independent Study: A Study on Prime Number Theorem, January 2018 – May 2018
Advisor: Dr. Paul Zeitz

Pennsylvania State University–University Park

Functional Analysis Project: A Study on Hardy's Proof on Uniform Distribution, January 2018 – May 2018
Independent Study: Reading "Lecture Notes on Functional Analysis: With Applications to Linear Partial Differential Equations", January 2018 – May 2018
Advisors: Dr. Sergei Tabachnikov and Dr. Moisey Guysinsky

Pennsylvania State University–University Park

Topology Project: Solving (9, 8, 4, 3, 7)-linkage problem, January 2018 – May 2018
Topology Final Project: Conway's Basic Theorem, September 2017 – December 2017
Advisor: Dr. Sergei Tabachnikov

University of San Francisco

Capstone Project: Using Graph Theory to Implement a Search Engine in Inverted Index Data Structure, January 2018 – May 2018
Advisor: Dr. Chris Bryan

University of San Francisco

Capstone Project: Applying Method of Steepest Descent and Cauchy Contour Integrals on Fisher Exact Test, January 2018 – May 2018
Advisor: Dr. Xuemei Chen

University of San Francisco

Research Assistant, August 2016 – May 2017
Worked on Lecture Notes for MSAN504 Review of Probability and Statistics
Advisor: Dr. Jeff Hamrick

University of San Francisco

Summer Research Project: Applying Combinatorics, Differential Geometry, Graph Theory, and Deep Learning in Therapeutic Video Games for Disabled Patients, June 2016 – September 2016
Capstone Project: Implementing Applications of Dijkstra Algorithm, Spring 2016
Advisor: Dr. David Galles

PRE-BACCALAUREATE INDEPENDENT PROJECTS

National Taiwan University

Reading papers on Ads/CFT (Gauge/Gravity duality), September 2011 – May 2013

Advisor: Dr. Pisin Chen

National Taiwan University

Studying Kontsevich-Soibelman wall crossing formula derivations and applications for mathematical quantum field theory, January 2012 – May 2012

Advisor: Dr. Heng-Yu Chen

National Taiwan University

A Study on Lee-Yang Theorem and the application of Riemann zeta function in Statistical Mechanics, January 2012 – May 2012

Advisor: Dr. Ning-Ning Pang

TEACHING EXPERIENCE

San Francisco State University

Graduate Teaching Assistant of Calculus, Spring 2022

Advisor: Dr. Chu-Kit Lai

San Francisco State University

Graduate Teaching Assistant of Pre-Calculus, Fall 2019

Advisor: Dr. Kim Seashore

University of San Francisco

San Francisco Math Circle, Fall 2016

Advisor: Dr. Paul Zeitz

National Dong Hwa University

Tutor of Calculus and General Physics, August 2008 – December 2009

Supervised by Department of Physics

AWARDS AND HONORS

- Dean's Honor Roll, University of San Francisco, Spring 2018
 - Mathematics Advanced Study Scholarship and Internal Scholarship (from MASS program), The Pennsylvania State University–University Park, Fall 2017
 - Dean's Honor Roll, University of San Francisco, Spring 2015, Fall 2016, and Spring 2017
 - Pi Mu Epsilon Honor Society at University of San Francisco
 - President's List, National Dong Hwa University, March 2008, November 2008, March 2009, March 2010
-

SKILLS

- Problem Solving; Can learn new skills quickly.
- Programming Languages: C/C++, LISP, Python, R, Java, Shell Script, Sed and Awk, LaTeX, SageMath, Mathematica.
- Packages and Libraries: Vimtex, Zathura, Ultisnips, Inkscape, TiKz, Numpy, Pandas, Scikit, Matplotlib, Orge3D