

# Shijie Feng

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## Research Interests

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Arithmetic Geometry, Homotopical Algebra

*Particular interest in  $p$ -adic Hodge theory,  $p$ -adic cohomologies and recent developments.*

## Education

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### M.Sc. in Mathematics (Master 2)

Sept 2025 – Present

Sorbonne Université, France

- Track: Mathématiques fondamentales
- Key Courses: Homology, Cohomology and Sheaves; Riemann Surfaces; Scheme Theory, Homotopy

### Visiting Student

Nov 2024 – Aug 2025

Westlake University, Hangzhou, China

- Courses Attended: Algebraic Number Theory, Category Theory, Six Functor Formalism, Diophantine Approximation.

### B.Sc. in Mathematics and Applied Mathematics

Sept 2019 – June 2024

Southwest University, Chongqing, China

- **Online, Math in Moscow**

Sept – Dec 2023

Course: Algebraic Geometry: start-up course

- **Visiting Student, Beijing Int. Center for Math. Research (BICMR)**

Feb – June 2023

Courses: Homology Theory (100/100), Differential Topology (82/100).

- **Transferred** from Mechanical Engineering to Mathematics.

Sept 2020

- Core Courses: Functional Analysis, Equation of Mathematical Physics, Dynamical Systems, Abstract Algebra, Module and Ring Theory, Elementary Number Theory, Differential Geometry, Function of Real Variable, Ordinary Differential Equations, Function of Complex Variable

- Overall GPA of courses: 88.6/100

## Research Experience

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### Research Internship

Summer 2025

*Advisor: Prof. Lifan Guan, Westlake University*

- Studied Fourier Mukai Transform in Algebraic Geometry.

- Read Alice Rizzardo's paper *Adjoints to a Fourier Mukai functor* and Ben-zvi, Francis and Nadler's paper *Integral Transform and Drinfeld Centers in Derived Algebraic Geometry*.

### Bachelor Thesis : Topology of Algebraic Manifolds

Feb–May 2024

*Advisor: Prof. Yanbo Zhou, Southwest University*

- Followed Lefschetz's approach to apply the idea of Morse theory to study topology of algebraic manifolds.

- The core is to prove some theorems like Lefschetz hypersurface section theorem, weak Lefschetz theorem, hard Lefschetz theorem and Lefschetz decomposition theorem. And we also get some interesting corollaries and applications based on the former results.

## Workshops & Seminars

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### 2025 International Mathematics Summer School

July 2025

Westlake University, Hangzhou, China

- Studied short course on *Modular Forms*.

### Algebras and Representation Theory

Sept-Dec 2023

Graduate Seminar/Course, Southwest University

- Followed Karin Erdmann and Thorsten Holm's *Algebras and Representation theory*.

### Galois Theory

Sept-Oct 2023

Undergraduate Seminar, Southwest University

- Organized whole seminar and present all talks by myself.
- Followed P.Stevenhagen's *Algebra III* course notes about Galois theory

### Summer Semester

July 2023

International Course, Southwest University

- Studied *Mathematical Logic*.

### Summer Semester

July 2022

International Course, Southwest University

- Studied *Computational Conformal Geometry*.

### Homological Algebra

Sept-Oct 2021

Graduate Seminar/Course, Southwest University

- Followed Hilton & Stammbach's Book *A Course in Homological Algebra*

## Teaching

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### Teaching Assistant, Southwest University

Spring 2024

Course: *Linear Algebra B*

- Graded weekly homework assignments
- Led exercise sessions

### Mentor for Freshman, Southwest University

Fall 2022

Course: *Calculus, Linear Algebra*

- Taught subjects *L'Hopital Rule and Taylor Formula, Solving Simple Ordinary Equations and Quadratic Form in Linear Algebra*
- Responsible for answering questions in the online community.

## Awards & Honors

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- **China National Scholarship; Second scholarship; Third scholarship**

2019, 2020, 2021

- **First Prize in Chongqing**, 13th the Chinese Mathematics Competition

2021

## Skills

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- **Languages:** Chinese (Native), English (Fluent), French (Intermediate).

- **Programming:** MATLAB, LATEX.