Thomas Sachen

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Education

Princeton University

- A.B. in Mathematics (2023), *Sigma Xi* (*departmental GPA: 3.8/4*)
- Thesis: *p-adic Hodge Theory and derived-Hodge-to-de-Rham Spectral Sequences*, advised by Bhargav Bhatt

Research Experience

Princeton University, 2021-2023

- Research in p-adic geometry, studying number-theoretic applications of techniques from derived algebraic geometry and p-adic Hodge theory, with Profs. Bhargav Bhatt and Chenyang Xu.

Tufts University, Summer 2021

- NSF REU program. Applied computational techniques using Python and GAP to characterizations of growth types of finitely-generated groups. Presented results at UConn Virtual REU conference and the Joint Mathematics Meeting 2022.

Georgia Institute of Technology, Summer 2020

- NSF REU program. Research in knot concordance and low-dimensional topology. Found a result relevant to orderability of fundamental groups of 3-manifolds, submitted for publication and presented at JMM 2022.

The University of Chicago, 2018

- Developed a Python program called Itzamna, a pseudo command-line interface for researchers and University of Chicago astrophysics students to remotely operate the Stone Edge telescope in Sonoma, California.

Skills

- Intermediate: Python (NumPy, pandas), Sage, Wolfram, MATLAB. Proficient: SQL, Java. **Specializing in (topological) data analysis and machine learning algorithm development.**
- Graduate coursework in algebraic geometry, arithmetic geometry, algebraic topology, complex geometry. My secondary academic focus was Russian literature and philosophy.
- Mathematical reasoning, abstract thinking, mathematics research, mathematical visualization, creative and interdisciplinary problem solving.
- Excellent interpersonal and communication skills.
- Proficient French, beginner Russian.

Non-research Experience

- I was a mathematics **teaching assistant and grader** at the **Art of Problem Solving**. I was also a **Princeton peer tutor**, giving tutorials in advanced mathematics courses.
- I was a **problem writer** for the **Princeton University Mathematics Competition** and the **Princeton Puzzle Hunt**.
- I was the **Station Manager and Music Director of WPRB Princeton**, Princeton University's radio station. I helped manage a multi-million dollar endowment and interfaced between our trustee board and ~ 40 staff members.
- I was the **coordinator for Princeton Mathematics departmental colloquiums**: I contacted and accomodated weekly guest speakers.

[1] Updated September 22, 2023