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Copenhagen  
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# Sophus Valentin Willumsgaard

## EDUCATION

### Master of Mathematics

August 2022 - May 2024 (expected)

*University of Copenhagen, Grade average 11.71 of 12*

Relevant courses: Fun with Finite Spectra, Algebraic Geometry 2, Algebraic Topology 2, Categories and Topology, Topics in Algebraic Topology, Riemannian Geometry.

### Bachelor of Mathematics

August 2019 - May 2022

*University of Copenhagen, Grade average 11.86 of 12*

Bachelor Thesis: Calculation on the Cobordism ring of oriented and unoriented manifolds, using the Pontryagin-Thom Construction.

### Exchange Program

September 2023 - January 2024 (Ongoing)

*Tsinghua University, China*

Relevant Courses: Topics in Algebraic Geometry, Number Theory: Local Class Field Theory, Algebraic Curves.

## WORK EXPERIENCE

### Teaching Assist

August 2021 - May 2023

*University of Copenhagen*

Courses Taught in chronological order:

- Mathematical Analysis / Matematisk Analyse (Machine Learning bachelor course) Block 1 2021-2022
- Measure theory / Mål- og Integralteori Block 2 2021-2022
- Linear Algebra in the Mathematical Sciences / Lineær algebra i de matematiske fag Block 2 2022-2023
- Algebra 2 Block 3 2022-2023
- Geometry 1 / Geometri 1 Block 4 2022-2023

### Teaching Assistant in Elementary School

January 2019 - Juni 2020

*EduLab*

I was teaching at different schools around Copenhagen, working with children struggling with mathematics and other subjects.

## PROJECTS

### A Calculation on Cobordism

July 2022

*Bachelor Thesis, Advisor Andrea Bianchi*

In my thesis i cover the theory of smooth manifold, vector bundles, characteristic classes and cobordisms. Then the oriented and unoriented cobordism rings are calculated using the Pontryagin-Thom construction. Lastly the classification of the cobordism rings is used to prove the Hirzebruch Signature theorem.

### Project about stacks and descent

March 2023

*Advisor Qingyuan Bai*

In this project i worked on the theory of descent and stacks, showing that quasicoherent sheaves gives a stack, and getting introduced to the techniques of modern algebraic geometry.

## SKILLS

**Language**  
**Programming**  
**Interests**

Danish (native), English (fluent), Chinese (beginner)  
Python, F#, Javascript  
Climbing, studying Chinese.  
I also want to learn to juggle with 5 balls.