Oscar Sprumont

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Education

University of Washington — Seattle, USA
Ph.D. in Computer Science and Engineering — 2018 - present
- Advisor: Anup Rao
- Research areas: Coding Theory, Complexity Theory

McGill University — Montreal, Canada
B.Sc. Honours in Mathematics and Physics, Minor in Computer Science — 2014 - 2018

Publications

1. **From Bit to Block: Decoding on Erasure Channels**
with Henry Pfister and Gilles Zémor. *Preprint*, 2025

2. **List-Decoding Capacity Implies Capacity on the q-ary Symmetric Channel**
with Francisco Pernice and Mary Wootters. *Preprint*, 2024

3. **A Criterion for Decoding on the Binary Symmetric Channel**
with Anup Rao. *Advances in Mathematics of Communications*, 2024

Teaching

Teaching Assistant, University of Washington

- CSE 531: Computational Complexity — Spring 2022
- CSE 421: Introduction to Algorithms — Fall 2021, Fall 2020, Winter 2020
- CSE 431: Introduction to Theory of Computation — Spring 2021
- CSE 521: Applied Algorithms — Winter 2021
- CSE 311: Foundations of Computing 1 — Spr 2019, Spr 2020, Fall 2019, Fall 2018
- CSE 373: Data Structures and Algorithms — Summer 2019
- CSE 490: Toolkit for Modern Algorithms — Winter 2019

Awards

NSERC Postgraduate Scholarship — 2020

NSERC Undergraduate Student Research Award — 2016, 2017

Talks

University of Copenhagen: List Decoding Capacity Implies BSC Capacity — Aug 2024

UW Theory Seminar: On List-Decoding Transitive and Doubly Transitive Codes Over the Binary Symmetric Channel — Mar 2023

UW Theory Lunch:

- Reed-Muller Codes Achieve Bit-Capacity — Mar 2024
- Top-Down Proofs for Constant Depth Circuits Lower Bounds — Nov 2023
- Applications of the Saddlepoint Method in Combinatorics — Oct 2022
- Weight Distribution of Reed-Muller Codes — Feb 2020
- Lower Bounds on Arithmetic Circuits with Bounded Coefficients — Jun 2019

Service

Reviewer: *IEEE Transactions on Information Theory 2024*
IEEE International Symposium on Information Theory 2024

Area Chair for PhD Admissions: University of Washington 2022

Organizer for Theory Lunch: University of Washington Fall 2023, Spring 2024

References

Anup Rao: anuprao@cs.washington.edu

Henry Pfister: henry.pfister@duke.edu

Mary Wootters: marykw@stanford.edu