

Curriculum Vitæ

Personal Information

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Summary of Education

- Sep 2015 – May 2020 **Department of Mathematical Sciences** *Göteborgs Universitet* – Bachelor's and Master's Degree in Mathematics
- Sep 2020 – Sep 2025 **Department of Mathematics** *Uppsala University* – PhD in Mathematics
- Thinking about the community detection problem in graphs, from combinatorial and algorithmic perspectives.
 - Parallel to these interests, also some thinking about more general machine learning methods and practice. The PhD position is part of a larger AI/ML research funding initiative across many universities in Sweden, giving access to courses, reading groups, and the like in the area.

Teaching experience

- 2023-2025 *Lecturer in* **Combinatorics**
- Redesigned the course, wrote new course materials, and held all lectures and examinations for the course.
- 2024 *Lecturer in* **Graph Theory**
- Reworked course materials, held all lectures and examinations for the course.
- 2023-2025 *Supervised two* **bachelor's theses**
- Co-supervisor for one thesis on machine learning applied to sport data, supervisor for one thesis on structural and algorithmic graph theory.

Publications

- *Universal lower bound for community structure of sparse graphs*, joint with F. Skerman and N. Kamčev, <https://arxiv.org/abs/2307.07271>
- *Classification of overlapping community detection methods in hypergraphs*, earlier version included in licentiate thesis, new version forthcoming.
- *Fixed-parameter tractability of the mixed-sign k -part minimum edge cut problem on sparse graphs*, under review.
- A project on *temporal modularity*, that will result in a paper this spring.

Website

For more detailed information on all this, and a list of projects, see my portfolio site:



<https://vagdur.github.io/>