KALLE HEINONEN

00530 ◇ Helsinki

kalle.a.heinonen@helsinki.fi, kalle.a.heinonen@aalto.fi

PERSONAL DETAILS

I am a mathematics master's student in the study track of geometry, algebra and topology at University of Helsinki. My master's thesis is on the Poincaré-Hopf index theorem, which relates data from isolated singularities of vector fields on closed manifolds to their topological properties.

EDUCATION

Bachelor of Science in Mathematics, University of Helsinki   2020 - 2023 completed
Minor in computer science

Master of Science in Mathematics, University of Helsinki   2023-2025 spring to be completed

SKILLS

Technical Skills	Problem solving, LaTeX, Python, Haskell, basics of Matlab, R and SQL.
Mathematics knowledge	Mainly around fields such as topology, abstract algebra, modern geometry, discrete math and some topics in analysis.
Computer science knowledge	The basic minor studies such as python programming, computer organization, algorithms and databases. Additionally functional programming in Haskell.
Languages	Finnish: Native, English: Full professional proficiency, Swedish: Limited.

TEACHING EXPERIENCE

Course assistant   Oct 2021 - Feb 2025
University of Helsinki

- Solvery tutor[1].

- Academic skills in mathematics MAT20005 2 ECTS[2].

- Algebraic structures I and II (groups, rings, fields) / MAT21010 and MAT21011 5 + 5 ECTS.

- Functional analysis I and II / MAST30170 and MAST30171 5 + 5 ECTS.

- Topology Ia and Ib (topology of metric spaces) / MAT21005 and MAT21006 5 + 5 ECTS (2 times both courses).

- Introduction to university mathematics (discrete math + complex numbers) MAT11001 5 ECTS

- High school substitute teacher occasionally.

OTHER ACADEMIC AND EXTRA CURRICULAR ACTIVITIES

Vice student representative of bachelor's program in mathematics at UH[3] (2023-2024). Student representative and vice student representative of master's program in mathematics and statistics at UH (2024-). Vice member of the HYY[4] representative council (2022-2024). Multiple responsibilities including the board twice in Matrix ry [5] (2021-). Vice chair and board of Moodi ry[6] (2024-). Multiple responsibilities in UH student nation Hämäläis-Osakunta (2021-).

---

[1] Tutoring sessions in university mathematics.

[2] Freshman course for mathematical reading and writing.

[3] University of Helsinki

[4] Student union of the University of Helsinki.

[5] Mathematics student organization.

[6] Statistics student organization.