

MSc Logic student focusing on quantum computing & quantum information, and mechanistic interpretability of language models, with a background in technical physics and linguistics.

EDUCATION

University of Amsterdam (UvA)

Amsterdam, NL

Master of Science, Logic (expected 2027)

Sept 2025 – Jul 2027

- Logic & Computation track
- Focus on Quantum Computing and Artificial Intelligence
- Selected coursework: Near-Term Quantum Computing, Quantum Hardware, ZX-Calculus, Deep Learning, Reinforcement Learning, Mechanistic Interpretability
- One-month research project in mechanistic interpretability of Transformer-based language models (variable assignment in code, causal interventions on the residual stream)

Vienna University of Technology (TU Wien)

Vienna, AT

Bachelor of Science in Technical Physics (with distinction)

Oct 2017 – Mar 2021

- Bachelor's thesis on building a VHDL-based test environment for a soft microcontroller on FPGA

University of Vienna

Vienna, AT

Bachelor of Arts in Linguistics (with distinction)

Oct 2022 – Jul 2025

- Erasmus+ Exchange Semester at Leipzig University (Spring 2024)
- Bachelor's theses in formal semantics and psycholinguistics (category-theoretic modelling; priming study on associative and semantic word relations)

Vienna University of Economics and Business (WU)

Vienna, AT

Bachelor of Laws, Business Law (50 ECTS completed)

Feb 2017 – Oct 2018

TECHNICAL SKILLS

Programming: Python, TypeScript/JavaScript, Java, Haskell, C/C++, VHDL

Frameworks & libraries: Qiskit, NumPy, PyTorch, TransformerLens, Angular, Leaflet, Cypress, Proj4J

Systems & tools: Linux (command line, remote/GUI-less servers), Git, Docker, Windows, HTML/CSS, L^AT_EX, TikZ (mathematical and linguistic typesetting), WordPress

Topics: Quantum computing and quantum information, machine learning and mechanistic interpretability, theoretical computer science and logic

PROJECTS & RESEARCH EXPERIENCE

Mechanistic interpretability of variable assignment in a Transformer-based model

One-month research project, MSc Logic, UvA, 2026

- Investigated how a Transformer-based language model represents variable assignment in Python code, using causal interventions on the residual stream and a synthetic dataset of assignment chains.

Variational quantum algorithm for vibrational spectrum of SO₂

Course project, Near-Term Quantum Computing, UvA, 2025

- Implemented a variational quantum algorithm (vQA) in Qiskit to probe the vibrational spectrum of the SO₂ molecule on a simulator, using a classical-quantum optimisation loop.

VHDL test environment for a soft microcontroller on FPGA

Bachelor's thesis, BSc Technical Physics, TU Wien, 2021

- Built a VHDL-based test environment on an FPGA for a soft microcontroller; configured the microcontroller and created C test scenarios.

Category-theoretic modelling and priming in linguistics

Bachelor's theses, BA Linguistics, University of Vienna, 2025

- Modelled linguistic phenomena using functors and monads; designed a priming study on associative and semantic word relations.

INTERNSHIPS	Austrian Institute of Technology Vienna, AT	Aug 2024 – Sept 2024
	<ul style="list-style-type: none"> • Developed an Angular frontend and automated end-to-end tests with Cypress to ensure reliable user workflows. • Implemented a Java backend with a REST-compliant API and a relational-database interface to provide the frontend with consistent data records. 	
	Austrian Institute of Technology Vienna, AT	Jul 2023 – Aug 2023
	<ul style="list-style-type: none"> • Programmed applications for an environmental data acquisition project, covering both data collection and processing components. • Extended the frontend with an interactive map (TypeScript, Leaflet) and enhanced the backend with validation of measured values (Java, Proj4J) to visualise and verify sensor data. 	
	Siemens Austria Vienna, AT	Jul 2020 – Oct 2020
	<ul style="list-style-type: none"> • Implemented a VHDL-based test environment on an FPGA around a soft microcontroller. • Configured the soft microcontroller and wrote C test scenarios to validate its behaviour. • Programmed an interface between the microcontroller and a Siemens component to test system-level integration. 	
	Austrian Institute of Technology Vienna, AT	Jul 2019 – Aug 2019
	<ul style="list-style-type: none"> • Built a test setup to demonstrate air-quality measurements of the UWEDAT sensor network solution. • Developed Python scripts for visualising sensor measurements and controlling the sensor hardware during demonstrations. 	
	Institute of Applied Physics, TU Wien Vienna, AT	Summer of 2018
	<ul style="list-style-type: none"> • Motorised the X-Y manipulators of a vacuum chamber using stepper motors to enable precise, remote positioning. • Designed mounts in CAD and integrated the motors with the existing control system. 	
TEACHING EXPERIENCE	Wirtschaftsförderungsinstitut Niederösterreich St Pölten, AT	Sept 2022 – June 2025
	<ul style="list-style-type: none"> • Taught adult learners at the Werkmeisterschule as an instructor in natural sciences and office software. • Designed and delivered courses on Excel, PowerPoint, Word, and basic scientific concepts to working professionals. 	
	Wiener Volkshochschulen Vienna, AT	Oct 2023 – Jan 2024
	<ul style="list-style-type: none"> • Taught a mathematics course for young pupils as part of the municipal Lernhilfe learning-aid programme, reinforcing core school mathematics. 	
	LernQuadrat Vienna, AT	May 2022 – Aug 2022
	<ul style="list-style-type: none"> • Tutored pupils in mathematics in individual and small-group settings, including intensive courses. • Covered the full range of lower- and upper-secondary school mathematics in preparation for exams. 	
HONOURS & SCHOLARSHIPS	• Merit Scholarship 2024/25 , University of Vienna, rank 8	13 Jan 2026
	• Merit Scholarship for recent graduates , State of Lower Austria	21 Oct 2025
	• EssLI Conference Scholarship 2025 , DGfS-CL/GSCL	27 May 2025
	• Merit Scholarship 2023/24 , University of Vienna, rank 13	9 Jan 2025
	• Merit Scholarship 2022/23 , University of Vienna, rank 3	10 Jan 2024
	• Erasmus+ Study Mobility , University of Vienna	7 Nov 2023
SUMMER SCHOOLS	EssLI 2025 Bochum, DE	28 Jul – 8 Aug 2025
	<ul style="list-style-type: none"> • Summer school in logic, linguistics, and computer science; selected courses: Neurosymbolic learning, Language model programming, Temporal logics 	
	Eastern Generative Grammar 2024 Braşov, RO	22 Jul – 2 Aug 2024
	<ul style="list-style-type: none"> • Summer school in generative linguistics; selected courses: Aspect and temporal definiteness, Intonation and meaning, The semantics of anaphora 	
LANGUAGES & CERTIFICATES	Languages: German (native), English (C2), Dutch (C1 receptive, B1 productive), French (B2 receptive, B1 productive), Swedish (B2 receptive, A2 productive), Greek (A2)	
	Certificates: Cambridge Advanced English (Grade A), Entrepreneur's Skills Certificate, IBM Quantum – Variational Algorithm Design	