

Nikola V. Maruszewski

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EDUCATION

Georgia Institute of Technology

PhD, Computer Science
• **Advisor:** Josiah Hester

Atlanta, GA

Aug 2025 – Present

Northwestern University

Master of Science, Computer Engineering
• **GPA:** 4.00/4.00
• **Thesis:** Improved Prefetching Techniques for Linked Data Structures
• **Committee:** Nikos Hardavellas (advisor), Peter Dinda, Russ Joseph

Evanston, IL

Sep 2022 – Jun 2025

Northwestern University

Bachelor of Science, Computer Science
• **GPA:** 4.00/4.00, *summa cum laude*
• Dean's list with High Honors, all quarters

Evanston, IL

Sep 2022 – Jun 2025

EXPERIENCE

Graduate Research Assistant

Georgia Institute of Technology
Working as a graduate research assistant in the [Ka Moamoa Lab](#).
• Working on timekeeping for low-power embedded and edge devices.

Aug 2025 – Present

Atlanta, GA

Machine Learning Developer

Caterpillar, Inc.
Worked part-time in the Autonomy and Automation Division on Machine Learning pipelines.
• Helped bring the project to an MVP and create an initial deployment.
• Worked with architect on major design decisions.
• Responsible for the design and implementation of key features.
• Continuation of work from internship.

Sep 2024 – Present

Remote (consulting)

Undergraduate Researcher

PARAG@N Lab
Led a research project to design improved Quantum Systems software.
• Designed and programmed a quantum compiler to optimize quantum circuits for emerging quantum computer topologies.
• Created a development framework and tools for further quantum systems research.
• Student leader of the project while an undergraduate student.

Sep 2022 – Jun 2025

Evanston, IL

Software Engineering Intern

Caterpillar, Inc.
Worked in the Autonomy and Automation Division on computer vision and data processing.
• Worked on the design and implementation of a new data warehouse and processing pipeline in Python.
• Designed and implemented distributed concurrency control systems for distributed compute with ZooKeeper.
• Worked a smartphone vehicle calibration system using OpenCV in Python.
• Learned about commercial robotics and autonomy platforms.

Jun 2024 – Aug 2024

Peoria, IL

Teaching Assistant

Northwestern University
Acted as an undergraduate peer mentor for CS 321: Programming Languages and CS 213: Intro to Computer Systems.
• Held several office hours each week.
• Answered questions, both synchronously in office hours and asynchronously on a Piazza message board.

Jun 2023 – Jun 2024

Evanston, IL

Campus Ambassador

Ansys, Inc.
Acted as the Campus Ambassador for Ansys at Northwestern.
• Researched, reached out to, and scheduled meetings with relevant campus groups to discuss Ansys' tools.
• Organized lunch info sessions for Ansys, including booking rooms and organizing food.
• Coordinated with a member of the Ansys team for the campus work.

Sep 2023 – Jun 2024

Evanston, IL

AWARDS AND HONORS

- Outstanding CS Senior** | *Northwestern University* May 2025
Given to the top members of the graduating Computer Science class at Northwestern.
- McCormick Summer Research Award** | *Northwestern University* 2023
Title: “A Compiler for Quantum Chiplets.” Advised by Nikos Hardavellas.
- Northwestern Academic Year Undergraduate Research Award** | *Northwestern University* 2023
Title: “A Compiler for Quantum Chiplets.” Advised by Nikos Hardavellas.
- Dean’s List with High Honors** | *Northwestern University* Dec 2022 — Jun 2025
Awarded each quarter to students with a 4.00 GPA. Received every quarter at Northwestern.

PUBLICATIONS

- Improved Prefetching Techniques for Linked Data Structures** *M.S. Thesis, Jun 2025*
Nikola Vuk Maruszewski. M.S. Thesis, Northwestern University, Technical Report NU-CS-2025-05, Evanston, IL, June 2025. DOI: <https://doi.org/10.21985/n2-bsav-a158>. Also, arXiv Hardware Architecture (cs.AR) [arXiv:2505.21669](https://arxiv.org/abs/2505.21669), June 2025.
- Modular Compilation for Quantum Chiplet Architectures** *Preprint, Jan 2025*
Mingyoung Jessica Jeng*, Nikola Vuk Maruszewski*, Connor Selna, Michael Gavrincea, Kaitlin N. Smith, and Nikos Hardavellas. arXiv Quantum Physics (quant-ph) [arXiv:2501.08478](https://arxiv.org/abs/2501.08478), January 2025.
(* denotes equal contribution)
- Media Coverage:**
- The Quantum Insider. [Researchers Say Quantum Compiler Boosts Speed And Reliability For Chiplet-Based Modular Systems](#). January 22, 2025
 - Semiconductor Engineering. [Parallelized Compilation Pipeline Optimized for Chiplet-Based Quantum Computers](#). January 21, 2025

RESEARCH GRANTS

- McCormick Summer Research Award** | *Northwestern University* 2023
Title: “A Compiler for Quantum Chiplets.” Advised by Nikos Hardavellas. \$4500 (supplemented to \$8000).
- Northwestern Academic Year Undergraduate Research Award** | *Northwestern University* 2023
Title: “A Compiler for Quantum Chiplets.” Advised by Nikos Hardavellas. \$1000.

TALKS AND PRESENTATIONS

- A Compilation Framework for Chiplet-Based Quantum Computing Systems** Sep 2023
Given at [Northwestern University](#).
- Quantum Computing Research at PARAG@N** May 2023
Lecture given for a class session of [COMP_ENG 456](#) at Northwestern University.