

Himanshu Dongre

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WEB [Personal website](#) [ORCID](#) [Google Scholar](#) [GitHub](#)

Research Interests

Quantum computing, quantum error correction, coding theory, cryptography, and cryptographic proof systems.

Education

2025–Present **M.S.**, Computer Science, University of Illinois Chicago
Expected graduation: Spring 2027; GPA: 4.00/4.00
2021–2025 **B.S.**, Computer Science, University of Illinois Chicago
Minor in Mathematics; Minor in Physics; Honors College
summa cum laude; GPA: 3.92/4.00

Preprints

W1. **Dongre, H.** & Gunderman, L. G. *Mixed-register Stabilizer Codes: A Coding-theoretic Perspective*. 2026. arXiv: [2603 . 28459 \[quant-ph\]](https://arxiv.org/abs/2603.28459). <https://arxiv.org/abs/2603.28459>.

Posters

- P1. **Dongre, H.** & Gunderman, L. G. *Mixed-register Stabilizer Codes: A Coding-theoretic Perspective*. [QEC26](#) (Santa Barbara, CA, USA). Presented by Himanshu Dongre. [Poster](#). June 2026.
- P2. **Dongre, H.** *Uffd-monitor: A Userspace Code Execution Monitor for Smarter Security-enhanced Software Runtime*. [UIC Undergraduate Research Forum](#) (Chicago, IL, USA). Apr. 2025.

Research Experience

Jan. 2026–Present **Graduate Research Assistant**, University of Illinois Chicago
Advisor: [Prof. Lane G. Gunderman](#)

- Proved no-go theorems for coprime trans-dimensional entanglement, and oscillator–qudit and coprime–qudit stabilizer codes.
- Developed a qLDPC stabilizer code construction over heterogeneous qudit systems from qLDPC uniform-register stabilizer codes.
- Constructed minimal-register mixed-register codes using a structure theorem resolving noncommutativity in non-Abelian Pauli subgroups.

Sept. 2025–Present **Graduate Research Assistant**, University of Illinois Chicago
Advisor: [Prof. Alex R. Block](#)

- Develop a modular distance-analysis framework for RA, RAA, and EA codes over arbitrary finite fields, yielding concrete guarantees and asymptotic RA bounds matching the binary case.
- Implement and benchmark finite-field RA, RAA, and EA encoders to measure distance–encoding-time tradeoffs for hash-based zk-SNARKs.

2024–2025 **Undergraduate Research Assistant**, University of Illinois Chicago
Advisor: [Prof. Xiaoguang Wang](#)

- Reduced executable in-memory footprint by 40% by serving and evicting code pages on demand in userspace.
- Trained an 80M-parameter autoregressive transformer on 1.7B execution tokens for detecting anomalous control flow.

Teaching Experience

Spring 2025 **Guest Lecturer**, Artificial Intelligence II (CS 511), University of Illinois Chicago
Invited by the course instructor to deliver a full lecture on Partially Observable Monte-Carlo Planning (POMCP) and a utility-based agent implementation for partially observable Wumpus World. [\[Slides\]](#) [\[Project report\]](#)

2023–2024 **Undergraduate Teaching Assistant**, University of Illinois Chicago
Courses: PL Design, Ethics, TA Training, Discrete Math, Theory of Computation

- Mentored 200+ students through discussions, office hours, and online forums.
- Designed rubrics and graded 120+ Scala DSL assignments for the PL design course (CS 476).
- Supported lectures, exams, and TA training activities.