Trinh Nguyen Tu Linh

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Education

Hanoi University of Science and Technology *Sep 2021 – Sep 2025*
BS in Control and Automation Engineering (Talented Program) *Graduated with Distinction*

- CPA: 3.61/4.0
- Coursework: Linear Algebra, Probability and Statistic, General Physics I, II, III. (4.0/4.0)

29th Vietnam School of Physics (VSOP 29) *Aug 2023*
Quantum Electronics and Quantum Photonics

Research Experience

Quantum Optimal Control Group (QOC) *Hanoi, Vietnam*
Undergraduate Researcher *Apr 2022 – Oct 2024*

- Investigate transmon-based qutrit gate characteristics and calibrate experimentally qutrit gate on quantum computer hardware of IBM.
- Improve qutrit gate fidelity by exploring phase-advanced problems and reducing phase errors.
- Contribute to building Python framework for automatic qutrit gate calibration.
- Enhance measurement performances through combining pulse-shaping and timing control with error-mitigation techniques.

Viettel Semiconductor (VST) *Hanoi, Vietnam*
Digital IC Engineer Intern *Apr 2024 – Apr 2025*

- Designed an All Digital Phase Lock Loop operating in 500MHz - 1.6GHz frequency with approximately 5μs.
- Designed Network-on-Chip architecture with AXI protocol Network Interface.

Vietnam Government Cipher Agency (VGCA) *Hanoi, Vietnam*
Guest Teaching Assistant *Jul 2024*

- Guide participants through hands-on exercises in Qiskit, covering basic operations and circuit simulations.
- Implement Grover's algorithm with circuit optimization techniques to evaluate a block cipher in collaboration with VGCA.

Projects

Single-qutrit gate calibration *2024*

- Implement a new algorithm to quantify phase-advanced in single-qutrit system.
- Develope phases tracking procedure to execute single-qutrit circuits, specifically randomized benchmarking.

Qutritium *2024*

- Contribute to developing phase-advanced automatic tracking process.
- Illustrate running process of some algorithms such as parity check, randomized benchmarking, interleaved randomized benchmarking.

IBM Quantum Challenge Spring 2023 *May 2023*

- Explore Dynamic Circuit and mid-circuit operators in experimental quantum hardware.
- Complete 5/5 challenge labs, including Iterative Phase Estimation, Error Corrections, and optimizing GHZ-state preparation circuits for execution on IBM's 127-qubit hardware.

Skills

Programming: C++, C, Python, Matlab, C#, RTL, FPGA

Software: Simulink, CVX, Pytorch, Xillinx, Cirq, Pennylane, QuTIP, Qiskit

Soft skill: Problem-solving, Teamwork, Design thinking, Adaptability.