I-Tung Chen

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Education

Ph.D. Electrical and Computer Engineering, Quantum Information Science and Engineering
University of Washington, Seattle, WA, USA, 2025
M.S. Electrical and Computer Engineering
University of Washington, Seattle, WA, USA, 2024

Experiences

Atlantic Quantum, quantum research scientist (Jan. 2025 – present)

- Circuit design

Marvell Semiconductor Inc, opto-electronic test engineer intern (Aug. 2024 – Jan. 2025, part-time)
(Jun. 2024 – Aug. 2024, full-time)

- Integrated photonic design for 800G coherent optic optical transceivers used in data center interconnections
- Develop software architecture automatic test equipment (ATE) for transceivers production testing and calibration
- Design SQL database for transceiver production and specification tracking

Microsoft (Azure Quantum), capstone project (Mar. 2023 – Jun. 2023)
Mentored by Mariia Mykhailova and Dr. Mathias Soeken

- Expand automatic oracle synthesis (AOS) using LLVM and integrate AOS with Azure Quantum Resource Estimator
- Quantum software architecture design using Q#, classical and quantum logic synthesis, LLVM and compilers

Journal papers

1. U. Adya, R. Chen, **I. T. Chen**, et al. “Non-volatile Tuning of Cryogenic Optical Resonators”, preprint arXiv:2410.08572 (2024)
2. **I. T. Chen** et al. “Optomechanical ring resonator for efficient microwave-optical frequency conversion”, Nature Communications 14, 7594 (2023). https://doi.org/10.1038/s41467-023-43393-x
3. N. S. Yama*, **I. T. Chen***, et al. “Silicon-Lattice-Matched Boron-Doped Gallium Phosphide: A Scalable Acousto-Optic Platform. Advanced Materials”, doi.org/10.1002/adma.202305434 (2023) *equal contribution authors
4. S.W. Shen, D.G. Chen, **I.T. Chen** et al., “Delayed Charge Recombination by Open-Shell Organics: Its Application in Achieving Superb Photodetectors with Broadband (400–1160 nm) Ultrahigh Sensitivity and Stability”, Advanced Optical Materials 8 (9), 1902179 (2020)
5. J. W. Shi, M. H. Lin, **I. T. Chen**, et al. “Cascaded exciton energy transfer in a monolayer semiconductor lateral heterostructure assisted by surface plasmon polariton”, Nature Communications 8, Article number: 35 (2017)

Conference papers

6. **I. T. Chen**, et al., "Bidirectional microwave-optical frequency conversion via itinerant optomechanics," in *CLEO 2024*, Technical Digest Series (Optica Publishing Group, 2024), paper FW3K.6.
7. **I. T. Chen** and C. Gupta, "Towards Efficient Automatic Oracle Synthesis and Resource Estimation Using QDK and QIR," *2023 IEEE International Conference on Quantum Computing and Engineering (QCE)*, Bellevue, WA, USA, 2023, pp. 185-186, doi: 10.1109/QCE57702.2023.10207.
8. **I. T. Chen** et al., “Optomechanical ring resonator on hybrid piezo-optomechanical platform”, 2023 Conference on Lasers and Electro-Optics (CLEO), San Jose, CA, USA, (2023), pp. 1-2.

Awarded patents

9. **I.T. Chen** et al., Two-Dimensional Semiconductor Device, Optoelectronic Unit and Method for Making the Two-Dimensional Semiconductor Device, (U.S. Patent Pub. # 20200312965)
10. T.H. Yang, Y.W. Harn, X.Q. Zhang, **I.T. Chen**, Y.H Lee. Two-Dimensional Semiconductor with Geometry Structure and Generating Method Thereof, (U.S. Patent Pub. # 20200111868)

Software related experiences

Programming languages: Python (Layout design: GDSFactory, Data processing), C/C++, C#, Visual Basics.NET (VB)
Quantum Computing: Q#, Qiskit (TA of quantum theory course using Qiskit and Azure Quantum with IonQ hardware)
Version control: GitHub, Gerrit, SVN, Bitbucket

Service and community

Journal Reviewer: IEEE Journal of Quantum Electronics, Optical Express, Advanced Science, ACS Photonics.

Student leader of Accelerating Quantum Enabled Technologies (AQET) program at UW. Hosted UW public lecture featuring Dr. Dario Gil (2023 Fall) and Dr. Peter Shor (2024 Fall).