

# I-Tung Chen

E-mail: i.tong2010@gmail.com

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## Education

### University of Washington, Seattle, WA USA

M.S./Ph.D. Electrical and Computer Engineering (2024/2025)

Dissertation: *Optomechanical Integrated Circuits for Efficient Microwave-to-Optical Transduction*

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## Experiences

### PsiQuantum, Photonic Designer (Oct. 2025 – present)

- Designing integrated photonic chips for photon-based quantum computer

### Atlantic Quantum (acquired by Google Quantum AI), Quantum Research Scientist (Jan. 2025 – Aug. 2025)

- Design and tape-out quantum processors based on fluxonium circuits, achieving long coherence times and high-fidelity gates
- Develop process design kits (PDKs) to standardize qubits, couplers, and resonators design to enable consistent scaling
- Work cross-functionally with the fabrication team for process development and the calibration team for design validation

### Marvell Semiconductor Inc, Opto-Electronic Test Engineer Intern (Jun. 2024 – Jan. 2025)

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

### Microsoft (Azure Quantum), capstone project (Mar. 2023 – Jun. 2023)

- Develop arithmetic logic synthesis tools in Q# and quantum intermediate representation (QIR) for quantum gate compilation
  - Collaborated with mentors Dr. Mathias Soeken and Mariia Mykhailova to integrate synthesis tools into Azure Quantum workflows
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## Journal papers

1. **I. T. Chen** et al. "Intermodal microwave-to-optical transduction using silicon-on-sapphire optomechanical ring resonator", *Science Advances*, 11 (37), eadx6485 (2025).
2. U. Adya, S. Singhal, R. Chen, **I. T. Chen**, et al. "Non-volatile tuning of cryogenic silicon photonic micro-ring modulators", *Nature Commun* 16, 9290 (2025).
3. **I. T. Chen** et al. "Optomechanical ring resonator for efficient microwave-optical frequency conversion", *Nature Commun* 14, 7594 (2023).
4. N. S. Yama\*, **I. T. Chen**\*, et al. "Silicon-Lattice-Matched Boron-Doped Gallium Phosphide: A Scalable Acousto-Optic Platform. *Advanced Materials*", 202305434 (2023) \*equal contribution authors.
5. 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).
6. 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 Commun* 8, 35 (2017).

## Conference papers

7. **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.
8. **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.
9. **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

10. U.S. Patent number 11183568: **I. T. Chen** et al., Two-Dimensional Semiconductor Device, Optoelectronic Unit and Method for Making the Two-Dimensional Semiconductor Device
  11. U.S. Patent number 11139371: T.H. Yang, Y.W. Harn, X.Q. Zhang, **I. T. Chen** et al., Two-Dimensional Semiconductor with Geometry Structure and Generating Method Thereof
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## Software related experiences

- Integrated photonic layout design: GDSFactory for circuit and layout design.
- Microwave design: Ansys HFSS/Maxwell. Optical design: Ansys Lumerical FDTD
- Version control: GitHub, Bitbucket, Gerrit, SVN. Collaboration tools: Jira, Confluence

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## **Service and community**

- Acknowledged Journal Reviewer: IEEE Journal of Quantum Electronics, Nature Communications, Laser & photonics reviews, Advanced Science, ACS Photonics, and Optics Express.
- Accelerating Quantum Enabled Technologies (AQET) student leader. Hosted UW public lecture featuring Dr. Dario Gil (2023 Fall) and Dr. Peter Shor (2024 Fall).