

BO-YU CHEN

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EDUCATION

National Taiwan University (NTU)

Taipei, Taiwan

B.S. in Physics & Computer Science | GPA: 4.09/4.30

Sep 2023 – Present

- Recipient of *Fu Bell Scholarship* — highest 4-year merit award for top 1% of NTU; renewable for academic excellence.
- First Place, Physics department's undergraduate special talent admission.
- Selected as *1 of 6 undergraduates* (freshman–senior) across NTU for Computer Science double major in 2024.

University of Illinois at Urbana–Champaign (UIUC)

Urbana, USA

Exchange Student in Department of Physics

Sep 2025 – May 2026 (expected)

- Supported by Chuan-Pu Lee Memorial Scholarship and full tuition waiver from UIUC.

PUBLICATIONS

*Equal contribution. **Citations Summary:** h-index = 4, Total citations = 167 ([Google Scholar](#))

- [7] *atommovr*: An open-source simulation framework for rearrangement in atomic arrays, Nikhil K. Harle*, **Bo-Yu Chen***, Bob Bao, Hannes Bernien, [arXiv:2508.02670](#), 2025.
This work was highlighted in *Quantum Zeitgeist*
- [6] *Nonparametric Modern Hopfield Models*, Jerry Yao-Chieh Hu*, **Bo-Yu Chen***, Dennis Wu, Feng Ruan, Han Liu, In *42nd International Conference on Machine Learning (ICML'25)*, 2025. [arXiv:2404.03900](#)
- [5] *STanHop: Sparse Tandem Hopfield Model for Memory-Enhanced Time Series Prediction*, Dennis Wu*, Jerry Yao-Chieh Hu*, Weijian Li*, **Bo-Yu Chen**, Han Liu, In *12th International Conference on Learning Representations (ICLR'24)*, 2024. [arXiv:2312.17346](#)
- [4] *Magnetoresistance Properties in Nickel-catalyzed, Air-stable, Uniform, and Transfer-free Graphene*, **Bo-Yu Chen**, Bo-Wei Chen, Wu-Yih Uen, Chi Chen, Chiashain Chuang, Dung-Sheng Tsai, *Nanotechnology* **35**, 205706, 2024. DOI: [10.1088/1361-6528/ad2381](#)
- [3] *On Sparse Modern Hopfield Model*, Jerry Yao-Chieh Hu, Donglin Yang, Dennis Wu, Chenwei Xu, **Bo-Yu Chen**, Han Liu, In *37th Conference on Neural Information Processing Systems (NeurIPS'23)*, 2023. [arXiv:2309.12673](#)
This work was highlighted in *Northwestern CS department news*.
- [2] *Modulations for Quantum Electronic Material Transports by Vacuum Annealing Methods*, Ji-Wei Ci, **Bo-Yu Chen**, Yuan-Chih Hung, Huan-Chien Wang, Dung-Sheng Tsai, Wu-Yih Uen, Yuan-Liang Zhong, Jhy-Shyang Wang, Chi-Te Liang, Chiashain Chuang, *Spin* **13**, 2340023, 2023. DOI: [10.1142/S2010324723400234](#)
- [1] *First-Principles Study on Possible Half-Metallic Ferrimagnetism in Double Perovskites $\text{Pb}_2\text{XX}'\text{O}_6$ ($\text{X} = \text{Ti, Zr, Hf, V, Nb}$ and Ta , $\text{X}' = \text{Tc, Ru, Os}$ and Rh)*, **Bo-Yu Chen**, Po-Han Lee, Yin-Kuo Wang, *Materials* **15**, 3311, 2022. DOI: [10.3390/ma15093311](#)

AWARDS & SCHOLARSHIPS

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|----------------------------------------------------------------------------------------------------|-----------------------------------------------|
| • Fu Bell Scholarship , NTU, Taiwan | 2023 Fall/Spring, 2024 Fall/Spring, 2025 Fall |
| • MCQST Summer Bachelor Program , Munich Center for Quantum Science and Technology, Germany | 2025 |
| • Chuan-Pu Lee Memorial Scholarship , College of Science, NTU, Taiwan | 2025 |
| • College of Science Travel Grants and Scholarship , College of Science, NTU, Taiwan | 2024 |
| • UChicago-Taiwan Student Exchange (UCTS) Fellowship , Department of Physics, UChicago, USA | 2024 |
| • Presidential Award (Awarded to students ranking in the top 5%), NTU, Taiwan | 2024 S |
| • Taipei City Mayor Award , Taipei City Government, Taiwan | 2023 |

RESEARCH EXPERIENCE

Department of Physics & James Franck Institute, University of Chicago

Chicago, USA

Research Intern (Advisor: Cheng Chin; Co-advisor: Jacob P. Covey)

Sep 2025 – Jun 2026 (expected)

Max-Planck-Institut für Quantenoptik

Garching, Germany

Research Intern (Advisor: Johannes Zeiher)

Jul 2025 – Aug 2025

- Supported by MCQST Summer Bachelor Program; top 16 out of 312 worldwide applicants.
- Built crossed-AODs experiment for testing application of *atommovr* in real-time atom rearrangement control.

Institut für Quantenoptik und Quanteninformation

Innsbruck, Austria

Research Intern (Advisor: Hannes Bernien)

Dec 2024 – Feb 2025

- Supported by IQOQI Innsbruck and NTU travel grants.
- Proposed the first algorithm achieving unity success rate in preparing arbitrary targets for dual-species atom arrays. [7]
- Developed *atommovr*, the first open-source package for simulating rearrangement in atomic arrays. [7]

Pritzker School of Molecular Engineering, University of Chicago

Chicago, USA

Research Intern (Advisor: Hannes Bernien)

Jun 2024 – Sep 2024

- Supported by UCTS Fellowship; youngest recipient; **featured in UChicago news**.

Department of Computer Science, Northwestern University

Evanston, USA

Remote Research Intern (Advisor: Han Liu)

Jan 2023 – Jan 2024

- Conducted theoretical research on pretrained models through the framework of dense associative memory. [3] [5] [6]

Department of Electronics Engineering, Chung Yuan Christian University

Taoyuan, Taiwan

High School Outreach Student (Advisor: Chiashain Chuang)

Aug 2021 – Jun 2023

- Investigated magnetoresistance of transfer-free graphene and potential applications in nanoscale magnetic sensor. [2] [4]

CONFERENCES PRESENTATIONS

- [5] *ExpAtommovr: Experimental Setup for Atom Rearrangement Control*,
Bo-Yu Chen, Adrien Bouscal, Johannes Zeiher,
MCQST Symposium, Garching, Germany, August 2025
- [4] *Dual-Species Neutral Atom Array 2.0: Towards a Versatile and Scalable Quantum Processor*,
Bob Bao, Nikhil Harle, **Bo-Yu Chen**, Jinyue Jiang, Hannes Bernien,
Quantum Science Gordon Research Conference, MA, USA, July 2024
- [3] *Temperature-Dependent Magnetoresistance of Transfer-Free Graphene Grown by APCVD*,
Bo-Yu Chen, Bo-Wei Chen, Ji-Wei Ci, Wu-Yih Uen, Po-Han Lee, Chi Chen, Chiashain Chuang, Dung-Sheng Tsai,
13th Recent Progress in Graphene and 2D Materials Research Conference, Taipei, Taiwan, November 2022
- [2] *Ab initio study on the growth mechanism of graphene on metal*,
Bo-Yu Chen, Po-Han Lee, Yin-Kuo Wang,
2022 Annual Meeting of the Physical Society of Taiwan, Taipei, Taiwan, January 2022
- [1] *Layer-dependent properties of SnSe₂ two dimensional materials*,
Bo-Yu Chen, Po-Han Lee, Yin-Kuo Wang,
2022 Annual Meeting of the Physical Society of Taiwan, Taipei, Taiwan, January 2022

SERVICE & OUTREACH

- Reviewer for top ML conference: *NeurIPS* 2024/2025, *ICLR* 2026, *AISTATS* 2024/2025/2026
- Team leader, 2024 UCTS exchange program, Physical Science Division, UChicago 2024
- Public talks about UCTS program: NTU freshman forum (> 150 audiences), NTU English corner (poster) 2024
- Assistant, SMART (Science, Mathematics, and Research Training) program, Chin lab, UChicago 2024
 - Introduced science for 20 underrepresented students from public high schools on Chicago's South Side.