

Shao-Heng Ko | 柯劭珩

Department of Computer Science – Duke University

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*Academic Help-seeking
Non-programming-based Computing Education*

Education

Duke University

Ph.D., Computer Science / Certificate in College Teaching

2020–2026(est.)

advisor: Kristin Stephens-Martinez

National Taiwan University

M.S., Graduate Institute of Electrical Engineering

2015–2017

advisor: Ho-Lin Chen

National Taiwan University

B.S., Electrical Engineering

2011–2015

Professional Experience

Duke University

Graduate Instructor of Record

2024

Inst. Information Science, Academia Sinica

Full-time Research Assistant (Research area: approximation algorithms and social network)

2017–2020

Lab. Teaching Innovation, National Taiwan University

Massive Open Online Courses (MOOC) Explorer

2015–2017

- Manufactured NTU MOOCs on Coursera and produced mini-MOOC prototypes
- Wrote column pieces to promote online learning
- Co-organized and paneled the “Why MOOCs” workshop

Honors & Awards

Duke Graduate School Dean’s Award for Excellence in Teaching

2025

Duke Graduate School Bass Instructor of Record Fellowship

2024

Duke CS Outstanding Teaching Award (2x)

2021, 2023

NTU GIEE Best Master Thesis (Title: Encouraging Peer Grading in MOOCs)

2017

Publications (* = equal contribution)

Conference Proceedings (Full Research Papers)

- [1] Shao-Heng Ko, Matthew Zahn, Kristin Stephens-Martinez, Yesenia Velasco, Lina Batestilli, and Sarah Heckman. Relationships Between Computing Students’ Characteristics, Help-Seeking Approaches, and Help-Seeking Behavior in Introductory Courses and Beyond. In *ACM ICER (Forthcoming)*, 2025.
- [2] Shao-Heng Ko and Kristin Stephens-Martinez. Prior What Experience? The Relationship Between Prior Experience and Student Help-Seeking Beyond CS1. In *ACM ITiCSE (Forthcoming)*, 2025.
- [3] Shao-Heng Ko, Kristin Stephens-Martinez, Matthew Zahn, Yesenia Velasco, Lina Batestilli, and Sarah Heckman. Student Perceptions of the Help Resource Landscape. In *ACM SIGCSE TS*, pages 596–602, 2025.
- [4] Shao-Heng Ko and Kristin Stephens-Martinez. The Trees in the Forest: Characterizing Computing Students’ Individual Help-Seeking Approaches. In *ACM ICER*, pages 343–358, 2024.
- [5] Shao-Heng Ko and Kristin Stephens-Martinez. What Drives Students to Office Hours: Individual Differences and Similarities. In *ACM SIGCSE TS*, pages 959–965, 2023.
- [6] Shao-Heng Ko*, Erin Taylor*, Pankaj K. Agarwal, and Kamesh Munagala. All Politics is Local: Redistricting via Local Fairness. In *NeurIPS*, pages 17443–17455, 2022.
- [7] Pankaj K. Agarwal, Shao-Heng Ko, Kamesh Munagala, and Erin Taylor. Locally Fair Partitioning. In *AAAI*, pages 4752–4759, 2022.
- [8] Shao-Heng Ko and Kamesh Munagala. Optimal Price Discrimination for Randomized Mechanisms. In *ACM EC*, pages 477–496, 2022.
- [9] Shao-Heng Ko, Ying-Chun Lin, Hsu-Chao Lai, Wang-Chien Lee, and De-Nian Yang. On VR Spatial Query for Dual Entangled Worlds. In *ACM CIKM*, pages 9–18, 2019.

Conference Proceedings (Experience Reports)

[1] **Shao-Heng Ko**, Alex Chao, and Violet Pang. Satisfactory for all: supporting mastery learning with human-in-the-loop assessments in a discrete math course. In *ACM SIGCSE TS*, pages 589–595, 2025.

Journal Articles

[1] **Shao-Heng Ko** and Kristin Stephens-Martinez. Rethinking computing students’ help resource utilization through sequentiality. *ACM Transactions on Computing Education (TOCE)*, 25(1), 2025.

[2] **Shao-Heng Ko** and Kamesh Munagala. Optimal Price Discrimination for Randomized Mechanisms. *ACM Transactions on Economics and Computation (TEAC)*, 12(2), 2024.

[3] Chih-Ya Shen*, **Shao-Heng Ko***, Guang-Siang Lee, Wang-Chien Lee, and De-Nian Yang. Density Personalized Group Query. *The International Journal on Very Large Data Bases (VLDB)*, 16(4):615–628, 2022.

[4] **Shao-Heng Ko**, Hsu-Chao Lai, Hong-Han Shuai, Wang-Chien Lee, Philip S. Yu, and De-Nian Yang. Optimizing Item and Subgroup Configurations for Social-Aware VR Shopping. *The International Journal on Very Large Data Bases (VLDB)*, 13(8):1275–1289, 2020.

Abstracts and Posters

[1] Matthew Forshaw, Cristina Adriana Alexandru, Caitlin Bentley, Vladimiro González-Zelaya, Joseph Kwame Adjei, Vangel Ajanovski, Mireilla Bikanga Ada, Julian Brooks, Joshua Burridge, Alex Chao, Rutwa Engineer, Olga Glebova, Tasmina Islam, Mitsuka Kiyohara, **Shao-Heng Ko**, Ellert Smári Kristbergsson, Svetlana Peltsverger, Seán Russell, Maíra Marques Samary, Merel Steenbergen, and Carolin Wortmann. Fairness in student allocation and group formation. In *ACM ITiCSE-WG (Forthcoming)*, 2025.

[2] Salma El Otmani, Janet Jiang, **Shao-Heng Ko**, and Kristin Stephens-Martinez. The Relationships Between Modality, Peer Instruction Discussion, and Class Sentiment in Hybrid Courses (Poster). In *ACM SIGCSE TS*, pages 1634–1635, 2024.

[3] **Shao-Heng Ko**. Characterizing Computing Students’ Academic Help-seeking Behavior (Doctorial Consortium). In *ACM ICER*, pages 73–75, 2023.

Teaching Experiences

Instructor of Record, Duke CS

◦ CS230 Discrete Mathematics for Computer Science [Spring 2024 (138 students)]

Teaching Assistant, Duke CS

◦ CS330 Intro to the Design and Analysis of Algorithms [Spring 2025 (336)] [Fall 2021 (142)] [Fall 2020 (172)]

◦ CS230 Discrete Mathematics for Computer Science [Summer 2025 (8)] [Fall 2023 (121)] [Spring 2021 (120)]

◦ CS216 Everything Data [Spring 2023 (234)] [Fall 2022 (208)]

Teaching Assistant, NTU EE/GIEE

◦ EE5182 Advanced Algorithms [Spring 2017 (97)]

◦ EE5048 The Design and Analysis of Algorithms [Fall 2016 (157)] [Fall 2015 (152)]

◦ EE2008 Discrete Mathematics [Spring 2016 Sec. A (136)] [Spring 2016 Sec. B (33)]

Academic Services

Conference/Journal Reviewing

◦ ACM SIGCSE Technical Symposium	[2025][2024][2023]	◦ ACM ITiCSE	[2025][2024]
◦ ACM ICER	[2025]	◦ ACM Transactions on Computing Education (TOCE)	[2024]
◦ ACM Designing Interactive Systems Conference (DIS)	[2025]	◦ ACM SIGCSE Virtual	[2024]
◦ The Web (WWW) Conference	[2024]	◦ IEEE GLOBECOM	[2018]

Research Mentoring

Undergraduate (Duke)

◦ Ricardo Urena	[Summer 2025]	◦ Zehavi Rodriguez	[Summer 2025]
◦ Janet Jiang	[Summer 2023 - Spring 2025]	◦ Salma El Otmani	[Summer 2023]
◦ Jerry He	[Summer 2023]		
◦ Belle (Hao) Xu	[Spring 2023]	◦ Rhea Tejjwani	[Spring 2023]

M.S. (Academia Sinica-NTU)

◦ Ta-Che Hsiao, Chi-Jen Lo, Chiao-Wen Lin [2019-2020]

Miscellaneous

2014: Co-editor of *Benson’s amazement in probability*, a collection of student-generated peer assessments in flipped undergraduate probability classes in Taiwan. ISBN: 9789861371832