Shao-Heng Ko | 柯劭珩

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Academic Help-seeking
Non-programming-based Computing Education

Education

Duke University **2020–2026(est.)**
Ph.D., Computer Science / Certificate in College Teaching *advisor: Kristin Stephens-Martinez*

National Taiwan University **2015-2017**
M.S., Graduate Institute of Electrical Engineering *advisor: Ho-Lin Chen*

National Taiwan University **2011-2015**
B.S., Electrical Engineering

Professional Experience

Duke Univeristy **2024**
Graduate Instructor of Record

Inst. Information Science, Academia Sinica **2017-2020**
Full-time Research Assistant (Research area: approximation algorithms and social network)

Lab. Teaching Innovation, National Taiwan University **2015-2017**
Massive Open Online Courses (MOOC) Explorer, Manufacturer, and Promoter

Honors & Awards

ITiCSE **Outstanding Reviewer** 2025
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** and Kristin Stephens-Martinez. Connecting Computing Students' External Help Resource Preferences and Internal Help Resource Usage: 2021-2025. In *ACM SIGCSE TS (forthcoming)*, 2026.

[2] **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*, pages 313–326, 2025.

[3] **Shao-Heng Ko** and Kristin Stephens-Martinez. Prior What Experience? The Relationship Between Prior Experience and Student Help-Seeking Beyond CS1. In *ACM ITiCSE*, pages 100–106, 2025.

[4] **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.

[5] **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.

[6] **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.

[7] **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.

[8] Pankaj K. Agarwal, **Shao-Heng Ko**, Kamesh Munagala, and Erin Taylor. Locally Fair Partitioning. In *AAAI*, pages 4752–4759, 2022.

[9] **Shao-Heng Ko** and Kamesh Munagala. Optimal Price Discrimination for Randomized Mechanisms. In *ACM EC*, pages 477–496, 2022.

[10] **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*, pages 699–700, 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

- CS171 Learning How to Learn with AI [Fall 2025 (24)]
- 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 [2026][2025][2024][2023]
- ACM ICER [2025]
- ACM Designing Interactive Systems Conference (DIS) [2025]
- The Web (WWW) Conference [2024]
- ACM ITiCSE [2025 *Outstanding Reviewer][2024]
- ACM Transactions on Computing Education (TOCE) [2024-now]
- ACM SIGCSE Virtual [2024]
- IEEE GLOBECOM [2018]

Research Mentoring

Undergraduate (Duke)

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