# Sungmin Kim, Ph.D. Candidate

▶ rena\_rio@yonsei.ac.kr

https://renariodyne.github.io/

Research interests:

- String, subsequence, and pattern matching algorithms
- Pattern matching under various equivalence relations
- Simon's congruence

### Education

2022 – Present 2017 – 2022 Ph.D. candidate in Computer Science, Yonsei University

- B.A. in English Language and Literature, Yonsei University
  - **B.E. in Computer Science, Yonsei University** Double major, Highest honors at graduation.

### **Research Publications**

#### **Journal Articles**

- **S. Kim** and Y.-S. Han, "Approximate Cartesian tree pattern matching," under review.
- **S. Kim**, Y.-S. Han, S.-K. Ko, and K. Salomaa, "On the Simon's congruence neighborhood of languages," under review.

**S. Kim**, S.-K. Ko, and Y.-S. Han, "Simon's congruence pattern matching," *Theoretical Computer Science*, vol. 994, p. 114 478, 2024.

**S. Kim**, Y.-S. Han, S.-K. Ko, and K. Salomaa, "On Simon's congruence closure of a string," *Theoretical Computer Science*, vol. 972, p. 114 078, 2023.

#### **Conference Proceedings**

7

- **S. Kim** and Y.-S. Han, "Pattern mining under Simon's congruence," in *Proceedings of the 29th International Conference on Developments in Language Theory*, 2025, to appear.
- **S. Kim** and Y.-S. Han, "Approximate Cartesian tree pattern matching," in *Proceedings of the 28th International Conference on Developments in Language Theory*, vol. 14791, Springer, 2024, pp. 189–202.
- P. Fleischmann, **S. Kim**, T. Koß, *et al.*, "Matching patterns with variables under Simon's congruence," in *Proceedings of the 17th International Conference on Reachability Problems*, vol. 14235, 2023, pp. 155–170.
- 4 Y.-S. Han, **S. Kim**, S.-K. Ko, and K. Salomaa, "Existential and universal width of alternating finite automata," in *Proceedings of the 25th International Conference on Descriptional Complexity of Formal Systems*, vol. 13918, 2023, pp. 51–64.
  - **S. Kim**, Y.-S. Han, S.-K. Ko, and K. Salomaa, "On the Simon's congruence neighborhood of languages," in *Proceedings of the 27th International Conference on Developments in Language Theory*, vol. 13911, 2023, pp. 168–181.
  - **S. Kim**, Y.-S. Han, S.-K. Ko, and K. Salomaa, "On Simon's congruence closure of a string," in *Proceedings* of the 24th International Conference on Descriptional Complexity of Formal Systems, vol. 13439, 2022, pp. 127–141.
  - **S. Kim**, S.-K. Ko, and Y.-S. Han, "Simon's congruence pattern matching," in *Proceedings of the 33rd International Symposium on Algorithms and Computation*, vol. 248, 2022, 60:1–60:17.

## Experience

Summer 2023	Visiting research at Göttingen University, Germany
Summer 2022	Visiting research at Queen's University, Canada
2023, 2024	Teaching Assistant: Data Structures / Automata and Formal Languages / Theory of Computation

## **Miscellaneous**

## Language Skills

KoreanImage: Image: Additional and the second and the se

## Graduate Scholarships

2022 – 2024	Accelerated degree program scholarship
2023	Academic research support ARF fellowship grant