

Hwee Kim

Contact Info

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Career

Mar 2018- Postdoctoral Scholar in Mathematics and Statistics
University of South Florida, Tampa
Discrete and Topological Methods for DNA Assembly
Advisor: Prof. Natasha Jonoska & Prof. Masahico Saito

Mar 2013-Feb 2018 Ph.D. Degree in Computer Science
Yonsei University, Seoul
Theory of Computation Lab | Advisor: Prof. Yo-Sub Han

Mar 2011-Feb 2013 B.S. Degree in Computer Science
Yonsei University, Seoul
GPA: 3.85/4.30 | Advisor: Prof. Kyungwoo Lee

Aug 2004-Dec 2006 Undergraduate Course in Computer Science
Carnegie Mellon University, Pittsburgh
Advisor: Prof. Mark Stehlik

Mar 2002-Feb 2004 **Seoul Science High School**, Seoul

Scholarships and Grants

Dec 2016 NAVER Ph.D. Fellowship (\$4,300), from NAVER
Mar 2013 Global Ph.D. Fellowship (\$27,000/year), from National Research Foundation of Korea (NRF)
Mar 2013 School Scholarship (Full Scholarship), from Yonsei University
Mar 2011 School Scholarship (Half Scholarship), from Yonsei University
Aug 2004 Presidential Science Scholarship (\$100,000/year), from Korea Student Aid Foundation (KOSAF)

Journal Publications

- March 2018 **Nondeterministic seedless oritatami systems and hardness of testing their equivalence,**
Yo-Sub Han, Hwee Kim, Makoto Ota and Shinnosuke Seki
Natural Computing, 17(1), 67-79
- May 2016 **Duplications and Pseudo-Duplications,**
Da-Jung Cho, Yo-Sub Han, Hwee Kim, Alexandros Palioudakis and Kai Salomaa
International Journal of Unconventional Computing, 12(2-3), 145-167
- Apr 2016 **OMPPM: Online Multiple Palindrome Pattern Matching,**
Hwee Kim and Yo-Sub Han
Bioinformatics, 32(8), 1151-1157
- Mar 2016 **Pseudo-inversion: Closure Properties and Decidability,**
Da-Jung Cho, Yo-Sub Han, Shin-Dong Kang, Hwee Kim, Sang-Ki Ko and Kai Salomaa
Natural Computing, 15, 31-99
- Aug 2015 **Non-overlapping Inversion on Strings and Languages,**
Hwee Kim and Yo-Sub Han
Theoretical Computer Science, 592, 9-22
- Apr 2015 **Alignment with Non-Overlapping Inversions and Translocations on Two Strings,**
Da-Jung Cho, Yo-Sub Han and Hwee Kim
Theoretical Computer Science, 575, 90-101

Peer-Reviewed Conference Publications

- Oct 2018 **Construction of Geometric Structure by Oritatami System,**
Yo-Sub Han and Hwee Kim
The 24th International Conference on DNA Computing and & Molecular Programming (DNA'18)
- Oct 2018 **Transcript Design Problem of Oritatami Systems,**
Yo-Sub Han, Hwee Kim and Shinnosuke Seki
The 24th International Conference on DNA Computing and & Molecular Programming (DNA'18)
- Sep 2018 **Site-Directed Deletion,**
Da-Jung Cho, Yo-Sub Han, Hwee Kim and Kai Salomaa
The 22nd International Conference on Developments in Language Theory (DLT'18)
- Jan 2018 **An Efficient Video Series Decision Algorithm Based on Actor-Face Recognition,**
Hong-Rae Lee, Hwee Kim, Yo-Sub Han, Yong-Seok Seo, Dong-Hyuck Im
2018 International Conference on Platform Technology and Service (PLATCON'18)
- Sep 2017 **Ruleset Optimization on Isomorphic Oritatami Systems,**
Yo-Sub Han and Hwee Kim
The 23rd International Conference on DNA Computing and & Molecular Programming (DNA'17)
- Jul 2017 **Self-attraction removal from oritatami systems,**
Yo-Sub Han, Hwee Kim, Trent A. Rogers and Shinnosuke Seki
The 19th International Conference on Descriptive Complexity of Formal Systems (DCFS'17)
- Jun 2017 **Analysis on the Nested Duplication String System and Its Capacity,**
Da-Jung Cho, Yo-Sub Han and Hwee Kim
The 16th International Conference on Unconventional Computation & Natural Computation (UCNC'17)

Peer-Reviewed Conference Publications (cont.)

- Sep 2016 **Nondeterministic seedless oritatami systems and hardness of testing their equivalence,**
Yo-Sub Han, Hwee Kim, Makoto Ota and Shinnosuke Seki
The 22nd International Conference on DNA Computing and & Molecular Programming (DNA'16)
- Aug 2015 **Duplications and Pseudo-Duplications,**
Da-Jung Cho, Yo-Sub Han, Hwee Kim, Alexandros Palioudakis and Kai Salomaa
The 14th International Conference on Unconventional Computation & Natural Computation (UCNC'15)
- Mar 2015 **Frequent Pattern Mining with Non-overlapping Inversions,**
Da-Jung Cho, Yo-Sub Han and Hwee Kim
The 9th International Conference on Language and Automata Theory and Applications (LATA'15)
- Oct 2014 **Online Multiple Palindrome Pattern Matching,**
Hwee Kim and Yo-Sub Han
The 21st International Symposium on String Processing and Information Retrieval (SPIRE'14)
- Jul 2014 **Pseudo-Inversion on Formal Languages,**
Da-Jung Cho, Yo-Sub Han, Shin-Dong Kang, Hwee Kim, Sang-Ki Ko and Kai Salomaa
The 13th International Conference on Unconventional Computation & Natural Computation (UCNC'14)
- Jun 2014 **Space-efficient Approximate String Matching Allowing Inversions in Fast Average Time,**
Hwee Kim and Yo-Sub Han
The 8th International Frontiers of Algorithmics Workshop (FAW'14)
- Feb 2014 **Alignment with Non-Overlapping Inversions on Two Strings,**
Da-Jung Cho, Yo-Sub Han and Hwee Kim
The 8th International Workshop on Algorithms and Computation (WALCOM'14)
- Oct 2013 **A CA Model for Target Tracking in Distributed Mobile Wireless Sensor Network,**
Yo-Sub Han, Hwee Kim and Sang-Ki Ko
The 13th International Conference on Control, Automation and Systems (ICCAS'13)

Misc. Conferences and Workshops

- Aug 2017 **Ruleset Optimization on Isomorphic Oritatami Systems,**
Yo-Sub Han and Hwee Kim
The 20th Korea-Japan Joint Workshop on Algorithms and Computation (WAAC'17)
- Jul 2013 **Alignment with Non-Overlapping Involutions on Two Strings,**
Da-Jung Cho, Yo-Sub Han and Hwee Kim
The 16th Korea-Japan Joint Workshop on Algorithms and Computation (WAAC'13)

Patents

- 2017 **Method for Creating Automata for Determination of Nested-duplication**,
Yo-Sub Han, Da-Jung Cho and Hwee Kim
- 2015 **Method and Device for Matching Pattern Using Palindrome Information**,
Yo-Sub Han and Hwee Kim
- 2015 **Method and Device for Mining Pattern on Inversion of Biological Sequence**,
Yo-Sub Han, Da-Jung Cho and Hwee Kim

Teaching Experience

Courses in Yonsei University

- 2017-1 Theory of Computation (CSI6502), TA
- 2016-2 Analysis of Algorithms (CSI6512), TA
- 2014-2 Analysis of Algorithms (CSI6512), TA
- 2014-1 Basic of Big Data Programming (GSI7395), TA
- 2014-1 Automata and Formal Languages (CSI3109), TA
- 2013-2 Introduction to Engineering Design (ENG1107), TA
- 2013-1 Automata and Formal Languages (CSI3109), TA

Software Capstone Design Tutoring in Yonsei University

- 2016-2 Space Filling with Oritatami System
- 2016-1 Finding Hamiltonian Paths for Space Filling with Oritatami System
- 2015-2 Ruleset Reduction in Oritatami System
- 2015-1 The Hamming Distance Computation Using a Tile Assembly Model
- 2014-2 Pattern Matching in LZW Compressed Strings
- 2014-1 Multiple Pattern Matching Allowing Inversions for a Regular Language Pattern
- 2013-1,2 Prime Decomposition of Unary Regular Languages

Languages

English: Fluent
Korean: Mothertongue

Programming Languages

Basic Knowledge: Python, PROLOG, LISP, SML
Intensive Knowledge: C++, Java, VBA

Area of Interest

Bio Computation Model (Oritatami), String Algorithms, Formal Language Theory

Activities

Jul 2016 Local Organizer of CIAA'16