

# Hwee Kim

## Contact Info

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## Education

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Mar 2013-Current Integrated Ph.D. Program 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

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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

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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

## Conference Publications

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- 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)
- 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)
- 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

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- 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

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### **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

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English: Fluent  
Korean: Mother tongue

## Programming Languages

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

## Area of Interest

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