

SUN-JOONG KIM

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CEO OF **MIMICUS Inc.**

Ph.D. in COMPUTATIONAL DESIGN

COMMITTEE MEMBER of ISO/TC 266 BIOMIMETICS WG4

ALUMNI OF QUANTUM STREAM, CREATIVE DESTRUCTION LAB OF ROTMAN SCHOOL OF MANAGEMENT

Certified Expert in KOREAN TRADITIONAL ARCHITECTURE

EDUCATION

- 2012 - 2016 **PH.D. IN COMPUTATIONAL DESIGN, GRADUATE SCHOOL OF CULTURE TECHNOLOGY**
- Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea
Dissertation Title: **A STUDY ON METADATA STRUCTURE AND RECOMMENDERS OF BIOLOGICAL SYSTEMS TO SUPPORT BIO-INSPIRED DESIGN** (Final Defense Date: May 31, 2016).
- Chair: Prof. Ji-Hyun Lee Dr. (COMPUTATIONAL DESIGN)
- Committee: Prof. JunYong Noh Dr. (COMPUTER GRAPHICS), Prof. Sung-Hee Lee Dr. (COMPUTER GRAPHICS), Prof. Juyong Park Dr. (PHYSICS) & Prof. Sukyung Park Dr. (BIOMECHANICS)
- 2010 - 2012 **MASTER OF SCIENCE AND ENGINEERING, GRADUATE SCHOOL OF CULTURE TECHNOLOGY**
- Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea
Thesis: **BIO-INFORMATION BASED PARAMETRIC MODELING RESEARCH TO SUPPORT BIOMIMETIC DESIGN FOR HIGH-SPEED TRAINS.**
- Chair: Prof. Ji-Hyun Lee Dr. (COMPUTATIONAL DESIGN)
- Committee: Prof. JunYong Noh Dr. (COMPUTER GRAPHICS) & Prof. Hyunjune Yim Dr. (SOLID MECHANICS)
- 2006 - 2008 **CERTIFICATE, PROFESSIONAL COURSE OF KOREAN TRADITIONAL ARCHITECTURE**
- Hanok Cultural Center (韓屋文化院), Seoul, Republic of Korea
Research: **A HISTORICAL RESEARCH FOR INTERPRETING GORYEO DYNASTY'S ARCHITECTURAL CULTURE THROUGH THE CHRONICLE: GO-RYEO-SA-JEOL-YO (高麗史節要).**
- Chair: Mr. Young-Hoon Shin (申榮勳)
- 2006 - 2010 **BACHELOR, DEPARTMENT OF MECHANICAL SYSTEM DESIGN ENGINEERING**
- Hong-Ik University, Seoul, Republic of Korea
Research: **LOW RESISTANCE HIGH SPEED TRAIN DESIGN BY BIOMIMETIC APPROACH.**
- Chair: Prof. Hyunjune Yim Dr. (SOLID MECHANICS) & Prof. Jung-Tae Kim Dr. (VIBRATION AND DYNAMICS)

CERTIFICATE AND HONORS

- 2021 **Alumni of Quantum Stream, Creative Destruction Lab of Rotman School of Management**
- 2019 **Committee Member of ISO/TC266 Biomimetics WG4 (KATS)**
- 2019 **Certified Police K9 Trainer, USA**
- 2019 **Official Member of The Biophilic Educators Network of Robert Wood Johnson Foundation**
- 2018 **Registered in 2017 KAIST Annual Research Report**
- 2017 **Minister Prize of The Ministry of Science and ICT, Republic of Korea**
- 2017 **Research Fellow of The Convergence Research Policy Center of KIST**
- 2015 **Student Research Fellow of The High Risk High Return Research Program(HRHRP) of KAIST**
- 2015 **2015 Student Research Fellow of The Center for Science-based Entrepreneurship of KAIST**
- 2014 **2014 Student Research Fellow of The Center for Science-based Entrepreneurship of KAIST**
- 2011 **Excellent Paper Award The Korea Construction IT Convergence Institute**
- 2009 **First Prize at The Research Competition The Dept. of MSDE Hong-Ik University**
- 2009 **Gold Prize at The CAD/CAM Modeling Competition The CAD/CAM Society of Korea**
- 2009 **Excellent Paper Presentation Award The Korean Society of Railway**
- 2009 **Silver Prize at The Creative Design Competition The Korean Society of Railway**
- 2008 **Korean Traditional Architect Certificate The Hanok Cultural Center**
- 2007 **The Color Coordinator Certificate The Tokyo Chamber of Commerce and Industry**
- 2006 **Interior Design Course Certificate Hong-Ik University**

TEACHING & WORK EXPERIENCES

2010 - 2014 **GRADUATE TEACHING ASSISTANT – GRADUATE SCHOOL OF CULTURE TECHNOLOGY**

- ED 100 Freshman Design Course (undergraduate level)
- GCT 966 GSCT Colloquium (graduate level)
- GCT 505 Human Computer Interaction (graduate level)
- GCT 986 GSCT Colloquium (graduate level)
- GCT 559 Computational Design (graduate level)
- GCT 753 TCD: Knowledge-based System Design (graduate level)

RESPONSIBILITIES: Support under the supervision of a faculty member, assist faculty in the department in teaching courses, as well as grade examinations and assignments.

ACHIEVEMENTS: Developed and provided the in-class exercises that encourage students to organize their knowledge to solve stated problems.

2010 - 2016 **TITLE :** **BIONIC MIR (www.bionicmir.com)**

RESPONSIBILITY : Research director & manager
 Designing metadata structure, managing repository of biological systems, and developing retrieval system of biological systems

2016 -	TITLE :	MIMICUS Inc. (<i>www.mimic.us</i>)
	RESPONSIBILITY :	CEO Designing metadata structure, managing repository of biological systems, and developing retrieval system of biological systems

INTELLECTUAL PROPERTIES

Kim, S.-J. 2019. SCHEME BASED IDEATION PLATFORM AND CASE REUSE BASED KNOWLEDGE RECOMMENDATION METHOD. KR PATENT 10-2019-0099473, FILLED AUGUST 14, 2019 (PUBLISHED)

Kim, S.-J. 2019. BIOLOGICAL SYSTEM INFORMATION RETRIEVAL SYSTEM AND METHOD. JR PATENT 2019-537249, FILLED JULY 10, 2019 (PUBLISHED)

TAC CAVE. 2019. **Kim, S.-J.**, KR TRADEMARK 40-2019-0026302 AND 40-2019-0026305, FILLED FEBRUARY 20, 2019

Kim, S.-J. AND KIM, I. 2019. SCOPE COVER. KR PATENT 10-2019-0017795, FILLED FEBRUARY 15, 2019 (PUBLISHED)

Kim, S.-J. 2018. REMOTE CONTROL SYSTEM AND METHOD TO SUPPORT SEPARATE OPERATION OF AN ANIMAL. PCT/KR2018/016435, FILLED DECEMBER 21, 2018 (PATENT PENDING)

Kim, S.-J. 2018. ANIMAL WEARABLE MULTI-USE MODULE PLATFORM SYSTEM. KR PATENT 10-2018-0166866, FILLED DECEMBER 21, 2018 (PUBLISHED)

Kim, S.-J. AND LEE, K. 2018. LIQUID PHASE DRINK MAKING DEVICE AND METHOD USING WOOD MESH. KR PATENT 10-2018-0134298, FILLED NOVEMBER 5, 2018 (PUBLISHED)

Kim, S.-J. 2018. DEVICE AND METHOD OF THE INHIBITING GROWTH OF WEEDS. KR PATENT 10-2018-0130190, FILLED OCTOBER 29, 2018 (PUBLISHED)

Kim, S.-J. 2018. REMOTE CONTROL SYSTEM AND METHOD TO SUPPORT SEPARATE OPERATION OF AN ANIMAL. KR PATENT 10-2018-0023993, FILLED FEBRUARY 27, 2018 (PUBLISHED)

Kim, S.-J. AND JEON, M. 2018. MULTI-DIMENSIONAL KNOWLEDGE SEARCHING METHOD AND SYSTEM FOR EXPERT SYSTEMS. KR PATENT 10-2018-0004353, FILLED JANUARY 12, 2018 (PUBLISHED)

Kim, S.-J. 2018. SEARCH SYSTEM AND METHOD FOR BIOLOGICAL SYSTEM INFORMATION. US-2021-0034837-A1, PUBLISHED FEBRUARY 4, 2021 (PUBLISHED)

Kim, S.-J. 2017. ARTIFICIAL INTELLIGENT SYSTEM FOR FINDING PROMISING TECHNOLOGIES USING ONLINE PATENT AUCTION SYSTEM. KR PATENT 10-2017-0173887, FILLED DECEMBER 18, 2017 (PATENT PENDING)

Kim, S.-J. 2017. SYSTEM FOR INDICATING NOVEL DRUG CANDIDATES. KR PATENT 10-2017-0173888, FILLED DECEMBER 18, 2017 (PATENT PENDING)

Kim, S.-J. 2017. APPARATUS, METHOD AND SYSTEM FOR CORRECTING SHAKE OF PHOTOGRAPHED IMAGE OF A CAMERA ATTACHED TO A DOG. KR PATENT 10-2017-0155258, FILLED NOVEMBER 21, 2017 (PATENT PENDING)

Kim, S.-J. 2017. SYSTEM AND METHOD FOR PROVIDING SOLUTION IDEA USING BIO-INSPIRED DESIGN PROCESS. KR PATENT 10-2017-0146299, FILLED NOVEMBER 3, 2017 (PUBLISHED)

MIMICUS TM. 2017. **Kim, S.-J.**, REPUBLIC OF KOREA, US TRADEMARK 87,388,956, FILLED MARCH 28, 2017

MIMICUS. 2017. **Kim, S.-J.**, KR TRADEMARK 40-2017-0040008, FILLED MARCH 29, 2017

Kim, S.-J. 2017. SEARCH DEVICE AND METHOD FOR BIOLOGICAL SYSTEM INFORMATION USING KEYWORD HIERARCHY. KR PATENT 10-2017-0035374, FILLED MARCH 21, 2017 (PUBLISHED)

Kim, S.-J. 2017. SEARCH SYSTEM AND METHOD OF BIOLOGICAL SYSTEM INFORMATION. KR PATENT 10-2017-0003066, FILLED JANUARY 9, 2017 (PUBLISHED)

Kim, S.-J. AND LEE, J.-H. 2016. APPARATUS AND METHOD FOR PROCESSING BIOLOGICAL SYSTEM INFORMATION. KR PATENT 10-2016-0043057, FILLED APRIL 7, 2016 (PUBLISHED)

PUBLICATIONS

JOURNALS

Kim, S.-J. and Lee, J.-H. (2017). A STUDY ON METADATA STRUCTURE AND RECOMMENDERS OF BIOLOGICAL SYSTEMS TO SUPPORT BIO-INSPIRED DESIGN. *Engineering Applications of Artificial Intelligence* **57**, pp.16-37. SCIE

Min, D.A., Hyun, K.-H., **Kim, S.-J.**, & Lee, J.-H. (2017). A RULE BASED SERVICESCAPE DESIGN SUPPORT SYSTEM USING REPRESENTATIVE CASES OF THEME PARKS. *Advanced Engineering Informatics* **32**, pp. 77-91. SCIE

Hyun, K.-H., Min, A., **Kim, S.-J.**, and Lee, J.-H. (2016). INVESTIGATING CULTURAL UNIQUENESS IN THEME PARKS THROUGH FINDING RELATIONSHIPS BETWEEN VISUAL INTEGRATION OF VISITOR TRAFFICS AND CAPACITY OF SERVICE FACILITIES. *International Journal of Architectural Computing* **14**(3), pp. 247-254. SCOPUS

Kim, S. -J. and Lee, J. -H. (2015). PARAMETRIC SHAPE MODIFICATION AND APPLICATION IN A MORPHOLOGICAL BIOMIMETIC DESIGN. *Advanced Engineering Informatics*, **29**(1), pp. 76-86. SCIE

Yuan, X., Lee, J. -H., **Kim, S. -J.**, and Kim, Y. -H. (2013). TOWARD A USER-ORIENTED RECOMMENDATION SYSTEM FOR REAL ESTATE WEBSITES. *Information Systems*, **38**, pp. 231-243. SCI

Lee, J. -H., Park, H. -J., Lim, S., and **Kim, S. -J.** (2012). A FORMAL APPROACH TO THE STUDY OF THE EVOLUTION AND COMMONALITY OF PATTERNS. *Environmental Planning B: Planning and Design*, **40**(1), pp. 23-42. SSCI, SCIE

Wu, Y., Lee, J. -H., Kim, Y. S., Lee, S. W., **Kim, S. -J.**, and Yuan, X. (2016). A SIMILARITY MEASUREMENT FRAMEWORK OF PRODUCT-SERVICE SYSTEM DESIGN CASES BASED ON CONTEXT-BASED ACTIVITY MODEL. *Computers & Industrial Engineering* (submitted). SCIE

PEER-REVIEWED CONFERENCE

Kim, S. -J. (2018). HIDE AND SEEK: KNOWLEDGE SEARCH IN BIOMIMICRY. in the *Proceedings of the 7th Living Machine 2018*, July 17-20, Paris, France.

Kim, S. -J., Choi, Y., and Lee, J. -H. (2015). ARCHITECTURAL BIOINSPIRED DESIGN: FUNCTIONAL ASSESSMENT OF DESIGN TERMINOLOGIES TO SUPPORT A BIOLOGICAL SYSTEM SEARCH. in the *Proceedings of the 33rd eCAADe Conference 2015*, September 16-18, Wien, Austria.

Hyun, K. -H., Min, A., **Kim, S. -J.**, and Lee, J. -H. (2015). FINDING RELATIONSHIPS BETWEEN VISITOR TRAFFICS AROUND MAJOR ATTRACTIONS AND THE SURROUNDINGS ENVIRONMENTS IN THEME PARKS. in the *Proceedings of the 20th International Conference of the Association for Computer-Aided Architectural Design Research in Asia (CAADRIA) 2015*, May 20-23, Daegu, Republic of Korea.

Kim, S. -J., Lee, J. -H., and Kim, Y. S. (2014). A DEVELOPMENT OF STRATEGY AND ALGORITHM FOR SIMILARITY ASSESSMENT IN THE PRODUCT-SERVICE BUSINESS MODEL CASES. in the *Proceedings of the Design Engineering Workshop (DEWS) 2014*, November 20-22, Taipei, Taiwan.

Kim, S. -J. and Lee, J. -H. (2014). THE EVOLUTIONARY CHANGES OF THE STREAMLINED HIGH-SPEED LOCOMOTIVES. in the *Proceedings of the 18th Iberoamerican Congress of Digital Graphics (SIGRaDi) Conference 2014*, November 12-14, Montevideo, Uruguay.

Kim, S. -J. and Lee, J.-H. (2014). INFORMATION MODELING AND FACTOR ANALYSIS TO FIGURE OUT THE DIRECTION FOR GLOBAL BIO-MODEL SEARCH. in the *Proceedings of the 6th International Conference on Design Computing and Cognition (DCC) 2014*, June 23-25, London, UK.

Hyun, K. -H., **Kim, S. -J.**, and Lee, J. -H. (2013). BALANCE BETWEEN CULTURAL FEATURES AND SERVICE DESIGN IN INTERNATIONAL THEME PARKS, in the *Proceedings of the International Association of Societies of Design Research (IASDR) Conference 2013*, August 26-30, Tokyo, Japan, pp. 1560-1568.

Kim, S. -J., Lee, W. -J., Kim, M. -K., and Lee, J. -H. (2012). PARAMETRIC MODELING AND ANALYSIS TO SUPPORT A BIOMIMETIC DESIGN FOR HIGH-SPEED TRAIN, in the *Proceedings of the International Conference on Innovative Design and Manufacturing (ICIDM) 2012*, December 12-14, Taipei, Taiwan.

Kim, S. -J. and Lee, J. -H. (2012). HOW BIOMIMETIC APPROACH ENLARGES MORPHOLOGICAL SOLUTION SPACE IN A STREAMLINED HIGH-SPEED TRAIN DESIGN? in the *Proceedings of the 16th SIGRaDi Conference*, November 13-16, Fortaleza, Brazil, pp. 538-542.

Wu, Y., X. Yuan, **Kim, S. -J.**, and Lee, J.-H. (2012). A DESIGN KNOWLEDGE REPRESENTATION FRAMEWORK FOR CASE-BASED PRODUCT-SERVICE SYSTEM DESIGN RECOMMENDER SYSTEM, in the *Proceedings of the International Service Design Conference (ISIDC) 2012*, October 22-24, Tainan, Taiwan.

Wu, Y., **Kim, S. -J.**, Yuan, X., and Lee, J. -H. (2012). A CASE-BASED RECOMMENDER SYSTEM FOR PRODUCT-SERVICE SYSTEM DESIGN, in the *Proceedings of the 2012 Service Design National Conference Korea*, July 19, Seoul, Korea.

Kim, S. -J. and Lee, J. -H. (2012). THE PRACTICAL ISSUES AT ADAPTATION OF MORPHOLOGICAL INFORMATION ON A BIOMIMETIC DESIGN, in the *Proceedings of the Design Engineering Workshop (DEWS) 2012*, June 25-27, Seoul, Korea.

Kim, S. -J., Shin, S. B., Kim, M., and Kang, S. R. (2012). SINGING ROPE: A MUSICAL INTERFACE IN ATTRACTION QUEUE, in the *Proceedings of the Designing Interactive Systems Conference (DIS) 2012*, June 11-15, Newcastle, UK.

Hsu, T. -W., **Kim, S. -J.**, Lee, J. -H., and Chiou, S. -C. (2012). CLIO: A PRIMARY STUDY OF THE IMAGE OF HISTORICAL CITY, in the *Proceedings of the International Conference on Kansei Engineering and Emotion Research 2012*, May 22-25, Penghu, Taiwan.

Kim, S. -J. and Lee, J. -H. (2012). DEVELOPING MORPHOLOGICAL SOLUTIONS IN BIOMIMETIC DESIGN: A METHODOLOGICAL STUDY, in the *Proceedings of the International Senior Project Conference (ISPC) 2012*, March 22-24, Hsinchu, Taiwan.

Kim, S. -J. and Lee, J. -H. (2011). A STUDY ON THE INFORMATION BASED METHODOLOGY TO SUPPORT A MORPHOLOGICAL BIOMIMETIC DESIGN, in *Proceedings of the Construction IT & BIM Academic Conference 2011*, November 24-26, Pyeongchang, Korea, pp. 55-56. **(Prize for Excellent Paper Award)**

Kim, Y. -H., Park, S. -J., Park, J., **Kim, S. -J.**, and Lee, J. -H. (2011). HOME SUGGESTION SERVICE IN REAL ESTATE SEARCHING SYSTEM: USING ONTOLOGY AND CASE-BASED REASONING, in the *Proceedings of the 29th eCAADe Conference*, September 21-24, Ljubljana, Slovenia, pp. 605-614.

Kim, S. -J., Kim, M. -K., Lee, W. -J., and Lee, J. -H. (2011). PARAMETRIC MODELING AND BIOLOGICAL MODEL ANALYSIS TO SUPPORT A BIOMIMETIC APPROACH IN HIGH-SPEED TRAIN DESIGN, in the *Proceedings of the International Bionic Engineering Conference 2011*, September 18-20, Boston, USA.

Lee, J. -H., Park, H. -J., Lim, S., **Kim, S. -J.**, Jung, H., and Whiting, M. (2010). A FORMAL APPROACH FOR THE INTERPRETATION OF CULTURAL CONTENT(S): EVOLUTION OF A KOREAN TRADITIONAL PATTERN, BOSANGWHAMUN, in the *Proceedings of the 15th CAADRIA Conference*, April 7-10, Hong Kong, pp. 19-28.

Kim, S. -J., Kim, S. -Y., Kim, J. -T., and Hong, Y. -H. (2009). LOW RESISTANCE HIGH SPEED TRAIN DESIGN BY BIOMIMETIC APPROACH, in *Proceedings of the Conference of Korean Society for Railway 2009*, November 19-21, Jeju, Korea, pp. 2464-2472. **(Prize for Excellent Paper Presentation Award)**