Minhyuk Sung

Assistant Professor, School of Computing, KAIST

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Research Interests

3D Machine Learning, Geometry Processing, Computer Graphics, Computer Vision.

Education

2013 - 2019 | Ph.D. in Computer Science,
Stanford University
Stanford, CA, USA
Dissertation: **Learning and exploring the compositional structure of 3D data**
Advisor: Leonidas Guibas

2008 - 2010 | Master of Science in Computer Science,
Korea Advanced Institute of Science and Technology (KAIST)
Daejeon, South Korea
Thesis: **A Spectral Approach to Shape Matching Using a Heat Kernel Function**
Advisor: Sung Yong Shin

2004 - 2008 | Bachelor of Science in Computer Science,
Korea Advanced Institute of Science and Technology (KAIST)
Daejeon, South Korea
Top Rank in Computer Science Department

Employment

Assistant Professor — Jan 2021 - Present
School of Computing, **KAIST**, Daejeon, Republic of Korea

Research Scientist — Oct 2019 - Dec 2020
Adobe Research, San Jose, CA, USA

Research Intern — Jun 2017 - Sep 2017
Autodesk Research, San Francisco, CA, USA

Research Intern — Jun 2016 - Sep 2016
Adobe Research, Seattle, WA, USA

Research Intern — Jun 2015 - Sep 2015
Google, Mountain View, CA, USA

Research Intern — Jun 2014 - Sep 2014
Google, Mountain View, CA, USA

Researcher — Mar 2010 - Jul 2013
Imaging Media Research Center (IMRC)
Korea Institute of Science and Technology (KIST), Seoul, South Korea

Publications

1. **DeepMetaHandles: Learning Deformation Meta-Handles of 3D Meshes with Biharmonic Coordinates**
   Minghua Liu, **Minhyuk Sung**, Radomír Měch, Hao Su
   CVPR 2021 (Oral)

2. **MultiBodySync: Multi-Body Segmentation and Motion Estimation via 3D Scan Synchronization**
   Jiahui Huang, He Wang, Tolga Birdal, **Minhyuk Sung**, Federica Arrigoni, Shi-Min Hu, Leonidas Guibas
   CVPR 2021 (Oral)

3. **Joint Learning of 3D Shape Retrieval and Deformation**
   Mikaela Angelina Uy, Vladimir G. Kim, **Minhyuk Sung**, Noam Aigerman, Siddhartha Chaudhuri, Leonidas Guibas
   CVPR 2021

4. **DeformSyncNet: Deformation Transfer via Synchronized Shape Deformation Spaces**
   Minhyuk Sung*, Zhenyu Jiang*, Panos Achlioptas, Niloy J. Mitra, Leonidas J. Guibas
   (* Equal contribution)
   SIGGRAPH Asia 2020

5. **Deformation-Aware 3D Shape Embedding and Retrieval**
   Mikaela Angelina Uy, Jingwei Huang, **Minhyuk Sung**, Tolga Birdal, Leonidas Guibas
   ECCV 2020

6. **Neural Geometric Parser for Single Image Camera Calibration**
   Jinwoo Lee, **Minhyuk Sung**, Hyunjoon Lee, Junho Kim
   ECCV 2020

7. **Pix2Surf: Learning Parametric 3D Surface Models of Objects from Images**
   Jiahui Lei, Srinath Sridhar, Paul Guerrero, **Minhyuk Sung**, Niloy Mitra, Leonidas Guibas
   ECCV 2020

8. **Learning 3D Part Assembly from a Single Image**
   Yichen Li*, Kaichun Mo*, Lin Shao, **Minhyuk Sung**, Leonidas Guibas
   (* Equal contribution)
   ECCV 2020

9. **Supervised Fitting of Geometric Primitives to 3D Point Clouds**
   Lingxiao Li*, **Minhyuk Sung***, Anastasia Dubrovina, Li Yi, and Leonidas Guibas
   (* Equal contribution)
   CVPR 2019 (Oral)

10. **GSPN: Generative Shape Proposal Network for 3D Instance Segmentation in Point Cloud**
    Li Yi, Wang Zhao, He Wang, **Minhyuk Sung**, and Leonidas Guibas
    CVPR 2019

11. **Deep Functional Dictionaries: Learning Consistent Semantic Structures on 3D Models from Functions**
    Minhyuk Sung, Hao Su, Ronald Yu, and Leonidas Guibas
    NeurIPS 2018

12. **Learning Fuzzy Set Representations of Partial Shapes on Dual Embedding Spaces**
Minhyuk Sung, Anastasia Dubrovina, Vladimir G. Kim, and Leonidas Guibas
SGP 2018 (Symposium on Geometry Processing)

13. **ComplementMe: Weakly-Supervised Component Suggestions for 3D Modeling**
Minhyuk Sung, Hao Su, Vladimir G. Kim, Siddhartha Chaudhuri, and Leonidas Guibas
SIGGRAPH Asia 2017
Featured in an ACM SIGGRAPH press release: [Link 1] [Link 2]

14. **Data-Driven Structural Priors for Shape Completion**
Minhyuk Sung, Vladimir G. Kim, Roland Angst, and Leonidas Guibas
SIGGRAPH Asia 2015

15. **Image Unprojection for 3D Surface Reconstruction: A Triangulation-based Approach**
Min-Hyuk Sung, Hwasup Lim, Hyoung-Gon Kim, and Sang Chul Ahn
IEEE International Conference on Image Processing (ICIP) 2013

16. **Finding the M-best Consistent Correspondences between 3D Symmetric Objects**
Min-Hyuk Sung and Junho Kim
Computers & Graphics, Feb.-Apr. 2013.

17. **A Triangulation-Invariant Method for Anisotropic Geodesic Map Computation on Surface Meshes**
Sang Wook Yoo, Joon-Kyung Seong, **Min-Hyuk Sung**, Sung Yong Shin and Elaine Cohen
IEEE Transactions on Visualization and Computer Graphics (TVCG), Oct. 2012.

Honors and Scholarships

2019 Doctoral Consortium
ICCV 2019

2019 Doctoral Consortium
SIGGRAPH 2019

2013 Doctoral Study Abroad Scholarship Recipient Honors
Korea Foundation for Advanced Studies (KFAS)

2008-2010 National Science and Engineering Graduate Research Scholarship
(S2-2008-000-00006-2)
Korea Student Aid Foundation (KOSAF)

2004-2008 National Science and Engineering Scholarship
Korea Student Aid Foundation (KOSAF)

2005-2008 Merit-based Scholarship
Korea Advanced Institute of Science and Technology (KAIST)

Teaching Experience

2021 Spring	Instructor CS492(H) Machine Learning for 3D Data, KAIST
2018 Spring	Guest Lecturer **CS233 Geometric and Topological Data Analysis**, Stanford
2016 Fall	Course Assistance **CS268 Geometric Algorithms**, Stanford
2015 Fall	Course Assistance **CS348A Computer Graphics: Geometric Modeling**, Stanford
2009 Spring	Teaching Assistance **CS202 Problem Solving**, KAIST

Academic Activities

Reviewer	SIGGRAPH, SIGGRAPH Asia, Eurographics, Pacific Graphics, CVPR, ICCV, 3DV, WACV, ACCV, NeurIPS, ICML, ICLR, ACM TOG, IEEE TVCG, CGF, TVC, C&G, IEEE TPAMI, IEEE RA-L.
Organizer	Structural and Compositional Learning on 3D Data, Workshop at ICCV 2021.

Talks

Jan 2021	Kakao Brain. Invited Speaker.
Feb 2021	Kakao Graduate School of Culture Technology. Invited Speaker.
Feb 2021	Korean Computer Vision Society. Computer Vision Researcher Forum Speaker.
Apr 2021	KAIST Software Graduate Program. Colloquium Speaker.
May 2021	Kakao Graduate School of Computing. Colloquium Speaker.
Jul 2021	Korea Computer Graphics Society 2021. Invited Speaker.

References

Leonidas Guibas	Professor, Stanford University	guibas@cs.stanford.edu
Vladimir Kim	Senior Research Scientist, Adobe Research	vokim@adobe.com
Siddhartha Chaudhuri	Assistant Professor, IIT Bombay Senior Research Scientist, Adobe Research	sidch@cse.iitb.ac.in sidch@adobe.com
Hao (Richard) Zhang	Professor, Simon Fraser University	haoz@cs.sfu.ca