Ji Hwan Park

Assistant Professor School of Computer Science University of Oklahoma

https://cs.ou.edu/~jpark jpark@ou.edu <u>Google Scholar</u>

RESEARCH INTERESTS

Visualization, Visual Analytics, Human-Centered Machine Learning/AI, Computer Graphics, AR/VR, and Human-Computer Interaction

EDUCATION

Stony Brook University, Stony Brook, NY

- Ph.D. in Computer Science, 2017
- Advisor: Distinguished Professor Arie E. Kaufman
- Thesis: User-centered visualization

Korea Advanced Institute of Science and Technology (KAIST), South Korea

- M.S. in School of Engineering, 2006
- Advisor: Professor Jinah Park
- Thesis: Anatomically based rigging using layered free-form deformation

Hongik University, Seoul, South Korea - B.S. in Computer Engineering, 2004

EMPLOYMENT

University of Oklahoma, Norman, OK

Affiliate Assistant Professor, Data Science and Analytics, 2022 – present Assistant Professor, Computer Science, 2021 – present

Brookhaven National Laboratory, Upton, NY

Assistant Computational Scienci Initiative, 2020 – 2021 Research Associate, Computational Science Initiative, 2018 – 2020

Stony Brook University, Stony Brook, NY Research Assistant, Visualization Lab, 2011 – 2017

Korea Advanced Institute of Science and Technology (KAIST), South Korea Research Staff, Computer Graphics and Visualization Lab, 2009 – 2010

Daewoo Electronics, South Korea Senior Research Engineer, Digital Media team and User Interface team, 2006 – 2009

Korea Advanced Institute of Science and Technology (KAIST), South Korea Research Assistant, Digital Media Lab, 2004 – 2006

PUBLICATIONS (*denotes authorship with graduate student mentee)

Refereed Journal/Conference papers

[r.18] Tien Tran*, Hea-Na Lee, **Ji Hwan Park**, "Accessible Visualization for People with ADHD", ACM conference on Human Factors in Computing Systems (CHI), 2024 (to appear)

[r.17] **Ji Hwan Park**, Vikash Prasad, Sydney Newsom, Fares Najar, and Rakhi Rajan, "idMotif: An Interactive Motif Identification in Protein Sequences", *IEEE Computer Graphics and Application*, 2023 (to appear)

[r.16] Braden Roper*, James C. Mathews and Saad Nadeem, and **Ji Hwan Park**, "Vis-SPLIT: Interactive Hierarchical Modeling for mRNA Expression Classification", *IEEE VIS* 2023 (to appear)

[r.15] Songyuan Yao, Richard Van, Xiaoliang Pan, **Ji Hwan Park**, Yuezhi Mao, Jingzhi Pu, Ye Mei, and Yihan Shao, "Machine learning based implicit solvent model for aqueous-solution alanine dipeptide molecular dynamics simulations", *RSC Adv.*, 13, 4565-4577, 2023

[r.14] Xin Dai*, **Ji Hwan Park**, Shinjae Yoo, Nicholas D'Imperio, Benjamin H. McMahon, Christopher T. Rentsch, Janet P. Tate, and Amy C. Justice, "Survival Analysis of Localized Prostate Cancer with Deep Learning", *Scientific Reports*, 12, 17821, 2022

[r.13] Xihaier Luo, Balu Nadiga, **Ji Hwan Park**, Yihui Ren, Wei Xu, and Shinjae Yoo, "A Bayesian Deep Learning Approach to Near-Term Climate Prediction", *Journal of Advances in Modeling Earth Systems*, 14, e2022MS003058, 2022

[r.12] **Ji Hwan Park**, Saad Nadeem, Saeed Boorboor, Joseph Marino, and Arie Kaufman, "CMed: Crowd Analytics for Medical Imaging Data", *IEEE Transactions on Visualization and Computer Graphics*, 27(6), pp 2869-2880, 2021 (presented at IEEE VIS)

[r.11] Sandeep Madireddy, **Ji Hwan Park**, Sunwoo Lee, Prasanna Balaprakash, Shinjae Yoo, Wei-keng Liao, Cory D. Hauck, M. Paul Laiu, Richard Archibald, "In Situ Compression Artifact Removal in Scientific Data Using Deep Transfer Learning and Experience Replay", *Machine Learning: Science and Technology*, 2 (2), 025010, 2020

[r.10] **Ji Hwan Park**, Han Eol Cho, Jong Hun Kim, Melanie Wall, Yaakov Stern, Hynsun Lim, Shinjae Yoo, Hyoung-Seop Kim, Jiook Cha, "Machine learning prediction of incidence of Alzheimer's disease using large-scale administrative health data", *npj Digital Medicine*, 3, 46, 2020

[r.9] Siwu Liu*, Ji Hwan Park, and Shinjae Yoo, "Efficient and Effective Graph Convolution Networks", SIAM International Conference on Data Mining (SDM), pp 388-396, 2020

[r.8] **Ji Hwan Park**, Ievgeniia Gutenko, and Arie Kaufman, "Transfer Function-Guided Saliency-Aware Compression for Transmitting Volumetric Data", *IEEE Transactions on Multimedia*, 22(9), pp 2262–2277, 2020

[r.7] Yun Wang, Chenxiao Xu, **Ji-Hwan Park**, Seonjoo Lee, Yaakov Stern, Shinjae Yoo, Jong Hun Kim, Hyoung Seop Kim, Jiook Cha, The Alzheimer's Disease Neuro imaging Initiative, "Diagnosis and prognosis of Alzheimer's disease using brain morphometry and white matter connectomes", *NeuroImage: Clinical* Vol.23, 101859, 2019

[r.6] **Ji Hwan Park**, Saad Nadeem, and Arie Kaufman, "GeoBrick: Exploration of Spatio-Temporal Data", *The Visual Computer*, 35(2), pp 191–204, 2018

[r.5] Ji Hwan Park, Arie Kaufman, and Klaus Mueller, "Graphoto: Aesthetically Pleasing Charts for Casual Information Visualization", *IEEE Computer Graphics and Application*, 38(6), pp 67-82, 2018 (presented at IEEE

VIS)

[r.4] **Ji Hwan Park**, Saad Nadeem, Seyedkoosha Mirhosseini, and Arie Kaufman, "C²A: Crowd Consensus Analytics for Virtual Colonoscopy", *IEEE Conference on Visual Analytics Science and Technology* (VAST), pp. 21-30, 2016

[r.3] Kangseok Choi, Hancho Park, **Jihwan Park**, Soojin Ko, Junsoo Park, and Byoungil An, "Crystal Cube UI: User Interface for Mobile Device using Circular Interaction of Virtual Cubes", *HCI Korea*, pp. 949-953, 2009

[r.2] Sekil Park, Jihwan Park, Dongwook Lee, and Jinah Park, "3D Virtual Engraving with Haptic Feedback", *HCI Korea*, pp. 219-224, 2006

[r.1] Jinsul Kim, **Jihwan Park**, Yong K. Hwang, and Manjai Lee, "Advanced Grasp Planning for Handover Operation between Human and Robot: Three Handover Methods in Esteem Etiquettes using Dual Arms and Hands of Home-Service Robot", *IEEE International Conference on Autonomous Robots and Agents (ICARA)*, pp.34-39, 2004

Workshops

[w.4] Wei Xu, Xihaier Luo, Yihui Ren, **Ji Hwan Park**, Shinjae Yoo, and Balasubramanya T. Nadiga, "Feature Importance in a Deep Learning Climate Emulator", *AI: Modeling Oceans and Climate Change Workshop (AIMOCC) at International Conference on Learning Representations (ICLR)*, 2021

[w.3] Xin Dai*, Ji Hwan Park, Nicholas D'imperio, Shinjae Yoo, "Longitudinal deep learning study on MIMIC-III dataset", *ISC Workshop on HPC Applications in Precision Medicine*, 2021

[w.2] **Ji Hwan Park**, Shinjae Yoo, and Balu Nadiga, "Machine learning climate variability", *Machine Learning and the Physical Sciences Workshop at NeurIPS 2019*

[w.1] Seok Kim, **Jihwan Park**, and Jinah Park, "Haptic Rendering Based on Penetration Depth for Intravenous Injection Simulation", *Korea Haptic Workshop*, 2010

Extended Abstracts

[e.16] Madhan Srinivasan Kumar, Veena Gujju, **Ji Hwan Park**, Debra Hogue, Abdul Rafeh Naqash, and Taha Al-Juhaishi, "Machine Learning can Outperform Ann Arbor Staging in Predicting Survival in Patient with Diffuse Large B-Cell Lymphoma: Analysis of a Large National Cancer Database", *American Society of Hematology Annual meeting*, 2023

[e.15] Vikash Prasad* and **Ji Hwan Park**, "PepProEx - Peptide and Protein Exploration Framework", *Bio+MedVis Challenge* at *IEEE VIS*, 2023 (oral presentation)

[e.14] Ji Hwan Park, Arie Kaufman, and Klaus Mueller, "Ambienizer: Turning Digital Photos into Ambient Visualizations", *IEEE VIS Extended Abstract*, 2022

[e.13] Ji Hwan Park, Saad Nadeem, Joseph Marino, Kevin Baker, Matthew Barish, and Arie Kaufman, "Crowd-Assisted Polyp Annotation of Virtual Colonoscopy Videos", *SPIE Medical Imaging*, 105790M, 2018 (oral presentation)

[e.12] Saeed Boorboor, Saad Nadeem, **Ji Hwan Park**, Kevin Baker, Arie Kaufman, "Crowdsourcing Lung Nodules Detection and Annotation", *SPIE Medical Imaging*, 105791D, 2018

[e.11] **Ji Hwan Park**, Seyedkoosha Mirhosseini, Saad Nadeem, Joseph Marino, Arie Kaufman, Kevin Baker, and Matthew Barish, "Crowdsourcing for Identification of Polyp-Free Segments in Virtual Colonoscopy Videos", *SPIE Medical Imaging*, 101380V, 2017 (oral presentation)

[e.10] Qi Sun, Seyedkoosha Mirhosseini, Ievgeniia Gutenko, **Ji Hwan Park**, Charilaos Papadopoulos, Bireswar Laha, and Arie E. Kaufman, "Buyers Satisfaction in A Virtual Fitting Room Scenario Based on Realism of Avatar", *IEEE Symposium on 3D User Interfaces (3DUI) Extended Abstract*, 2015

[e.9] Ievgeniia Gutenko, Kaloian Petkov, Charilaos Papadopoulos, Xin Zhao, **Ji Hwan Park**, Arie Kaufman, Ronald Cha, "Remote volume rendering pipeline for mHealth applications", *SPIE Medical Imaging*, 903904, 2014 (oral presentation)

[e.8] Ji Hwan Park and Arie E. Kaufman, "Next Generation SCADA", CEWIT International Conference Poster, 2014

[e.7] **Ji Hwan Park** and A. Kaufman, "Circle Bills: Visualization for the Smart Grid", *IEEE Pacific Visualization Symposium (PacificVis) Extended Abstract*, 2012

[e.6] **Ji Hwan Park**, Nafees Ahmed, Klaus Mueller, and Arie Kaufman, "Interactive Visualization for Smart Grid", *CEWIT International Conference Poster*, 2011

[e.5] Seokyeol Kim, Jihwan Park, and Jinah Park, "Progressive mesh cutting for real-time haptic incision simulator", *SIGGRAPH Asia Extended Abstract*, 2010

[e.4] Hyunsang Ahn, Manjai Lee, Il-kwon Jeong, Jihwan Park, "A Smart Agent for Taking Pictures", SIGGRAPH Asia Extended Abstract, 2009

[e.3] Jinsul Kim, Hyunsang Ahn, **Jihwan Park**, Yong K. Hwang, and Manjai Lee, "Intelligent HRI Planning in Virtual Reality : A Humanoid Home-Service Robot for Human-Robot Coexisting Robot gets closer to humans", *IEEE International Conference on Human Computer Interaction Poster*, 2005

[e.2] **Ji Hwan Park**, Yong Koo Hwang, and Manjai Lee, "Manner Sensitive Interaction Control between 3D Models", *HCI Korea Poster*, 2005

[e.1] Jinsul Kim, Jihwan Park, Yong K. Hwang, and Manjai Lee, "Grasp Planning for Anthropomorphic Home-Service Robot", *International Conference on Artificial Reality and Telexistence Poster*, 2004

AWARDS

[a.4] Joule Award, DOE National Nuclear Security Administration (NNSA) Office of International Nuclear Safeguards, 2022

[a.3] Joule Award, DOE National Nuclear Security Administration (NNSA) Office of International Nuclear Safeguards, 2020

[a.2] Travel Grant, NeurIPS Machine Learning and the Physical Sciences Workshop, 2019

[a.1] Fellowship, Computer Science Department, Stony Brook University, 2010

INVITED TALKS

[t.6] "User-Centered Visualization and Analytics", University of Cincinnati, April 2023

[t.5] "User-Centered Visualization and Analytics", NJIT, April 2023

[t.4] "Big Data Visualization and Analytics in Multiple Platforms", OU Industry and Government Day, 2022

[t.3] "User-Centered Visualization and Analytics", University of Oklahoma, April 2021

- [t.2] "User-Centered Visualization", University of Louisville, November 2020
- [t.1] "User-Centered Visualization", Brookhaven National Laboratory, August 2017

TEACHING

University of Oklahoma

- CS4063/5063 Human-Computer Interaction (undergraduate/graduate course), Instructor Spring 2024
- CS4273 Capstone (undergraduate course), Instructor Fall 2022, Fall 2023
- CS3203 Software Engineering (undergraduate course), Instructor Spring 2022, Fall 2022

Stony Brook University

- CSE547 Discrete Mathematics (graduate course), Teaching Assistant Spring 2016
- CSE528 Computer Graphics (graduate course), Teaching Assistant Fall 2015
- CSE215 Foundations of Computer Science (undergraduate course), Recitation Class Instructor Spring 2011
- CSE110 Introduction to Computer Science (undergraduate course), Lab Instructor Fall 2010

Korea Advanced Institute of Science and Technology (KAIST)

- ICC355 Modeling and Rendering (undergraduate course), Lab Instructor - Fall 2005

GRANTS

University of Oklahoma

[g.7] Subcontract, Brookhaven National Laboratory, "User Interface Development for Surveillance Video Analysis", 1/2022–12/2023, \$81,457

[g.6] Co-PI, Department of Defense, "Identifying Protein Motifs in Cas9 Essential for Bacterial Virulence", 6/2023– 5/2025, \$310,000 (my share: \$ 19,958)

[g.5] PI, OU DISC Seed Funding, "Interactive Visual Analytics Framework for Identifying Unique Motifs in Cas9 Protein Sequences", 10/2022–10/2023, \$7,000

Brookhaven National Laboratory

[g.4] Co-PI, DOE-National Nuclear Security Administration (NNSA), "Machine Learning for Video Surveillance in Safeguards of Pebble-Bed Reactors", 5/2020–9/2021

[g.3] Co-Investigator, DOE-National Nuclear Security Administration (NNSA), "Develop Deep Learning Algorithm for Video Surveillance in Nuclear Safeguards", 10/2019–10/2020

[g.2] Co-Investigator, DOE-National Nuclear Security Administration (NNSA), "Using Deep Learning Algorithms to Enhance Image-review Software for Surveillance Cameras", 10/2020–9/2021

[g.1] Co-Investigator, Department of Veterans Affairs, "VA-DOE Exemplar Project on Cancer", 9/2019–9/2021

PATENTS

[p.2] 10-2006-0120282, "Method for operating sleep mode in a PMP device" (Korea)

[p.1] 10-2006-0103386, "Apparatus and method for compensating movement of a PMP" (Korea)

ADVISING & MENTORING

Ph.D. Students

2023 – Current	Amirhossein Arezoumand, University of Oklahoma, Computer Science
2022 – Current	Vikash K. Prasad [e.15], University of Oklahoma, Computer Science
2021 – Current	Branden Roper [r.16], University of Oklahoma, Computer Science
2018 - 2020	Siwu Liu [r.9], Stony Brook University, Applied Mathematics and Statistics, currently Research
	Scientist at Meta

Master Students

2023 – Current	Ruyu Liu, University of Oklahoma, Computer Science
2022 - Current	Tien Tran [u.1], University of Oklahoma, Data Science
2022 - 2022	Siddhardha Maguluri, University of Oklahoma, Computer Science
2021 - 2021	Deepika Mettu, University of Oklahoma, Data Science
2013 - 2013	Ritwik Das, Stony Brook University, Computer Science
2013 - 2013	Xiang Yu, Stony Brook University, Data Science

Undergraduate Students

2023 – Current	Doanh Nguyen, University of Oklahoma, Computer Science
2022 - Current	Yunjia Zheng, Communication University of China, Intelligence Science
2023 - 2023	Alexis Munoz, University of Oklahoma, Computer Science
2022 - 2023	Rebekah Lee, University of Oklahoma, Computer Science
2019 - 2019	Joshua Papello, St. Joseph's University New York, Computer Science

High School Students

2020 - 2020	Zoey Park
2019 - 2019	Judi Cui
2019-2019	Ruth Lee

Ph.D. Committees

- Oluwasijibomi Ajisegiri (Computer Science, University of Oklahoma), Hye Lim Lee (Communication, University of Oklahoma), Haoliang Zhang (Electrical and Computer Engineering, University of Oklahoma), Omkar Saiswaroop Varma Chekuri (Computer Science, University of Oklahoma), Yonathan Hendrawan (Computer Science, University of Oklahoma), Kole Long (Chemistry and Biochemistry, University of Oklahoma)

Mentorship of Postdoctoral Fellow

2020 – 2021 Xin Dai [r.14], currently Assistant Computational Scientist, Brookhaven National Laboratory

SERVICES

External Professional Service

- Program Committee: IEEE VIS Short paper 2022-23

- Reviewer: IEEE VIS (2016-22), IEEE PacificVis (2017-18, 2021-23), EuroVis (2017,2019-20, 2022), IEEE VR (2022-23), ACM CHI (2022-24), ACM CSCW (2022-24), IEEE CG&A (2019), MDPI Imaging (2020-23), Scientific Reports (2021), Journal of Supercomputing (2015), Future Generation Computer Systems (2015-16)

Department Service

- Student Engagement Committee, 2021 - present

- Undergraduate Committee, 2022 - present

- Faculty Search Committee, 2022 - present

University Service

- Mentor, First-Year Student Mentoring Program, 2022 - present

REFERENCES

Arie E. Kaufman

Distinguished Professor Computer Science, Stony Brook University ari@cs.stonybrook.edu

Klaus Mueller Professor Computer Science, Stony Brook University <u>mueller@cs.stonybrook.edu</u>

Shinjae Yoo Computational Scientist Brookhaven National Laboratory sjyoo@bnl.gov

Xiaojun Bi Associate Professor Computer Science, Stony Brook University xiaojun@cs.stonybrook.edu