Kwang-Sung Jun

746 Gould-Simpson, 1040 E. 4th Street – Tucson, AZ 85721
kjun@cs.arizona.edu • kwangsungjun.github.io

Academic Appointments

University of Arizona — **Tucson, AZ**
Assistant Professor, Department of Computer Science — *August 2019–current*

Boston University — **Boston, MA**
Postdoctoral Associate, Hariri Institute — *September 2018–July 2019*
Advisor: Francesco Orabona

University of Wisconsin-Madison — **Madison, WI**
Postdoctoral Associate, Wisconsin Institute for Discovery — *August 2015–July 2018*
Advisors: Rebecca Willett, Stephen Wright, and Robert Nowak

Education

University of Wisconsin-Madison — **Madison, WI**
Ph.D. Computer Sciences — *2009–2015*
Advisor: Xiaojin (Jerry) Zhu
Dissertation: Some Machine Learning Methods from Sequential Input

University of Wisconsin-Madison — **Madison, WI**
M.S. Computer Sciences — *2009–2011*

Soongsil Univeristy — **Seoul, South Korea**
B.E. Computing (Summa cum Laude); minor in Mathematics — *2003–2009*

Publications (Preprints)

*Advisees are underlined.

Hao Qin, **Kwang-Sung Jun**, Chicheng Zhang. "Kullback-Leibler Maillard Sampling for Multi-armed Bandits with Bounded Rewards." 2023. `https://arxiv.org/abs/2304.14989`

Francesco Orabona, **Kwang-Sung Jun**. "Tight Concentrations and Confidence Sequences from the Regret of Universal Portfolio." ArXiv preprint 2110.14099 (submitted to IEEE Transactions on Information Theory), 2022.

Publications

*Advisees are underlined.

Kyoungseok Jang, **Kwang-Sung Jun**, Ilja Kuzborskij, Francesco Orabona (alphabetical order). "Tighter PAC-Bayes Bounds Through Coin-Betting." In *Proceedings of the Conference on Learning Theory (COLT)*, 2023. `https://arxiv.org/abs/2302.05829`

Yao Zhao, Connor Stephens, Csaba Szepesvári, **Kwang-Sung Jun**. "Revisiting Simple Regret Minimization in Multi-Armed Bandits." In *Proceedings of the International Conference on Machine Learning (ICML)*, 2023. `https://arxiv.org/abs/2210.16913`

Kyoungseok Jang, Chicheng Zhang, **Kwang-Sung Jun**. "PopArt: Efficient Sparse Regression and Experimental Design for Optimal Sparse Linear Bandits." In *Neural Information Processing Systems (NeurIPS)*, 2022.

Yeoneung Kim, Insoon Yang, **Kwang-Sung Jun**. "Improved Regret Analysis for Variance-Adaptive Linear Bandits and Horizon-Free Linear Mixture MDPs." In *Neural Information Processing Systems (NeurIPS)*, 2022.

Louis Faury, Marc Abeille, **Kwang-Sung Jun**, Clément Calauzènes. "Jointly Efficient and Optimal Algorithms for Logistic Bandits." In *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2022.

Spencer Brady Gales, Sunder Sethuraman, **Kwang-Sung Jun**. "Norm-Agnostic Linear Bandits." In *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2022.

Jie Bian, **Kwang-Sung Jun**. "Maillard Sampling: Boltzmann Exploration Done Optimally." In *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2022.

Blake Mason, **Kwang-Sung Jun**, Lalit Jain. "An Experimental Design Approach for Regret Minimization in Logistic Bandits." In *AAAI Conference on Artificial Intelligence (AAAI)*, 2022.

Kwang-Sung Jun, Lalit Jain, Blake Mason, Houssam Nassif. "Improved Confidence Bounds for the Linear Logistic Model and Applications to Bandits." In *International Conference on Machine Learning (ICML)*, 2021.

Kyoungseok Jang, **Kwang-Sung Jun**, Se Young Yun, Wanmo Kang. "Improved Regret Bounds of Bilinear Bandits using Action Space Dimension Analysis." In *International Conference on Machine Learning (ICML)*, 2021.

Hyejin Park, Seiyun Shin, **Kwang-Sung Jun**, Jungseul Ok. "Transfer Learning in Bandits with Latent Continuity." In *IEEE International Symposium on Information Theory (ISIT)*, 2021.

Kwang-Sung Jun, Chicheng Zhang "Crush Optimism with Pessimism: Structured Bandits Beyond Asymptotic Optimality." In *Neural Information Processing Systems (NeurIPS)*, 2020.

Kwang-Sung Jun, Chicheng Zhang "Crush Optimism with Pessimism: Structured Bandits Beyond Asymptotic Optimality." In ICML Workshop on Theoretical Foundations of Reinforcement Learning, 2020. (**Oral presentation**)

Kwang-Sung Jun, Francesco Orabona. "Parameter-Free Locally Differentially Private Stochastic Subgradient Descent." In *NeurIPS Workshop on Privacy in Machine Learning (PriML)*, 2019.

Kwang-Sung Jun, Ashok Cutkosky, Francesco Orabona. "Kernel Truncated Randomized Ridge Regression: Optimal Rates and Low Noise Acceleration." In *Neural Information Processing Systems (NeurIPS)*, 2019.

Kwang-Sung Jun and Francesco Orabona. "Parameter-Free Online Convex Optimization with Sub-Exponential Noise." In *Proceedings of the Conference on Learning Theory (COLT)*, 2019.

Kwang-Sung Jun, Rebecca Willett, Stephen Wright, Robert Nowak. "Bilinear Bandits with Low-rank Structure." In *Proceedings of the International Conference on Machine Learning (ICML)*, 2019.

Kwang-Sung Jun, Lihong Li, Yuzhe Ma, Xiaojin Zhu. "Adversarial Attacks on Stochastic Bandits." In *Neural Information Processing Systems (NeurIPS)*, 2018.

Yuzhe Ma, **Kwang-Sung Jun**, Lihong Li, Xiaojin Zhu. "Data Poisoning Attacks in Contextual Bandits." In *Conference on Decision and Game Theory for Security (GameSec)*, 2018.

Kwang-Sung Jun, Robert Nowak. "Bayesian Active Learning on Graphs." In *Cooperative and Graph Signal Processing*, Petar Djuric and Cedric Richard, Eds., Elsevier, 2018.

Kwang-Sung Jun, Francesco Orabona, Rebecca Willett, Stephen Wright. "Online Learning for Changing Environments using Coin Betting." *Electronic Journal of Statistics (EJS)*, 11(2), 5282–5310, 2017.

Kwang-Sung Jun, Aniruddha Bhargava, Robert Nowak, Rebecca Willett. "Scalable Generalized Linear Bandits: Online Computation and Hashing." In *Advances in Neural Information Processing Systems (NeurIPS)*, 2017.

Xiaozhu Meng, Barton P. Miller, **Kwang-Sung Jun**. "Identifying Multiple Authors in a Binary Program." In *European Symposium on Research in Computer Security (ESORICS)*, 2017.

Kwang-Sung Jun, Francesco Orabona, Rebecca Willett, Stephen Wright. "Improved Strongly Adaptive Online Learning using Coin Betting." In *The International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2017. (**Oral presentation** 28/168=16.7%)

Kwang-Sung Jun, Robert Nowak. "Graph-Based Active Learning: A New Look at Expected Error Minimization." In *In IEEE GlobalSIP Symposium on Non-Commutative Theory and Applications*, 2016.

Jeffrey Zemla, Yoed Kenett, **Kwang-Sung Jun**, Joseph Austerweil. "U-INVITE: Estimating Individual Semantic Networks from Fluency Data." In *Proceedings of the 38th Annual Meeting of the Cognitive Science Society*, 2016.

Kwang-Sung Jun, Robert Nowak. "Anytime Exploration for Multi-armed Bandits using Confidence Information." In *Proceedings of the International Conference on Machine Learning (ICML)*, 2016.

Kwang-Sung Jun, Kevin Jamieson, Robert Nowak, Xiaojin Zhu. "Top Arm Identification in Multi-armed Bandits with Batch Arm Pulls." In *The International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2016.

Kwang-Sung Jun, Xiaojin Zhu, Timothy Rogers, Zhuoran Yang, Ming Yuan. "Human Memory Search as Initial-visit Emitting Random Walk." In *Advances in Neural Information Processing Systems (NeurIPS)*, 2015.

Kayla Jacobs, **Kwang-Sung Jun**, Nathan Lieby, Elena Eneva. "Smarter Crisis Crowdsourcing." In *ACM SIGKDD Workshop on Data Science for Social Good*, 2014.

Kwang-Sung Jun, Xiaojin Zhu, Burr Settles, Timothy Rogers. "Learning from Human-Generated Lists." In *Proceedings of the International Conference on Machine Learning (ICML)*, 2013.

Jun-Ming Xu, **Kwang-Sung Jun**, Xiaojin Zhu, Amy Bellmore. Learning from Bullying Traces in Social Media. In *North American Chapter of the Association for Computational Linguistics - Human Language Technologies (NAACL-HLT)*, 2012.

Michael Maynord, Jitrapon Tiachunpun, Xiaojin Zhu, Charles R. Dyer, **Kwang-Sung Jun**, Jake Rosin. "An Image-To-Speech iPad App." In *Department of Computer Sciences Technical Report TR1774, University of Wisconsin-Madison*, 2012.

Bryan R. Gibson, **Kwang-Sung Jun**, Xiaojin Zhu. "With a little help from the computer: Hybrid human-machine systems on bandit problems." In *NeurIPS Workshop on Computational Social Science and the Wisdom of Crowds*, 2010.

Xiaojin Zhu, Bryan R. Gibson, **Kwang-Sung Jun**, Timothy T. Rogers, Joseph Harrison, and Chuck Kalish. "Cognitive models of test-item effects in human category learning." In *Proceedings of the International Conference on Machine Learning (ICML)*, 2010.

Kwang-Sung Jun and Kyu-Baek Hwang. "An efficient collaborative filtering method based on k-nearest neighbor learning for large-scale data." In *Proceedings of Korea Computer Congress*, 2008.

Research Grants

2023. Research, Innovation & Impact, University of Arizona. "Sequential Decision-Making Algorithms for Accelerated Materials Science." $15,000.

2022. Data Science Academy, University of Arizona. "Data-Driven Risk Assessment and Mitigation for Post-Fire Debris Flows." $28,521.

2022. Research, Innovation & Impact, University of Arizona. "Provably Efficient Adaptive Monte Carlo Methods." $27,890.

Awards

Top 10% reviewer, International Conference on Machine Learning (ICML), 2022.

Top 10% reviewer, International Conference on Artificial Intelligence and Statistics (AISTATS), 2022.

Top 8% reviewer, Neural Information Processing Systems (NeurIPS), 2021.

Travel Grants, International Conference on Machine Learning (ICML), 2013.

Doctoral Study Abroad Scholarship from The Korea Foundation of Advanced Studies, 2009-2014.

Alumni Scholarship, Department of Computer Sciences, University of Wisconsin-Madison, 2009.

Korean Broadcasting System (KBS) Science and Engineering Human Resource Development Scholarship, 2009.

Advising/Degree Committee

PhD advisee: Yao Zhao (CS, 2020-), Kapilan Balagopalan (CS, 2022-) Tuan Nguyen (CS, 2022-), Spencer Brady Gales (Applied Math, 2020-2022), Jie Bian (CS, 2020-2022)

Postdoc mentee: Kyoungseok Jang (March 2022-)

Minor advisee: Yeshuai He (SIE), Amanda Triplett (Hydrology), Minhang Zhou (SIE), Shunyu Yao (SIE), Amir Hossein Yazdani Abyaneh (ECE), Guangyu Hu (Materials Science)

Comprehensive exam committee: Manujinda Wathugala (May 2022)

Internal dissertation committee: Chinmai Basavaraj (December 2021)

External dissertation committee: Bingshan Hu (University of British Columbia; September 2021)

Academic Service

Proposal reviews

NSF CISE Panel review, 2021.

Conference reviews

Area Chair (Equivalent to Senior Area Chair), Association for the Advancement of Artificial Intelligence (AAAI), 2023.
Area Chair, Neural Information Processing Systems (NeurIPS), 2023.
Senior Program Committee (Area Chair), Conference on Learning Theory (COLT), 2023.
Program Committee, International Conference on Machine Learning (ICML), 2023.
Program Committee, International Conference on Artificial Intelligence and Statistics (AISTATS), 2023.

Program Committee, Neural Information Processing Systems (NeurIPS), 2022.
Reviewer, Conference on Learning Theory (COLT), 2022.
Program Committee, International Conference on Machine Learning (ICML), 2022.
Senior Program Committee, Association for the Advancement of Artificial Intelligence (AAAI), 2022.
Program Committee, International Conference on Artificial Intelligence and Statistics (AISTATS), 2022.
Program Committee, Neural Information Processing Systems (NeurIPS), 2021.
Program Committee, International Conference on Machine Learning (ICML), 2021.
Reviewer, Conference on Learning Theory (COLT), 2021.
Program Committee, International Conference on Artificial Intelligence and Statistics (AISTATS), 2021.
Senior Program Committee, Association for the Advancement of Artificial Intelligence (AAAI), 2021.
Program Committee, Neural Information Processing Systems (NeurIPS), 2020.
Reviewer, Conference on Learning Theory (COLT), 2020.
Program Committee, International Conference on Artificial Intelligence and Statistics (AISTATS), 2020.
Senior Program Committee, Association for the Advancement of Artificial Intelligence (AAAI), 2020.
Reviewer, Neural Information Processing Systems (NeurIPS), 2019.
Program Committee, International Joint Conference on Artificial Intelligence (IJCAI), 2019.
Program Committee, International Conference on Machine Learning (ICML), 2019.
Reviewer, Conference on Learning Theory (COLT), 2019.
Program Committee, International Conference on Artificial Intelligence and Statistics (AISTATS), 2019.
Reviewer, Neural Information Processing Systems (NeurIPS), 2018.
Program Committee, International Conference on Machine Learning (ICML), 2018.
Reviewer, IEEE Transactions on Signal Processing, 2018.
Program Committee, International Conference on Artificial Intelligence and Statistics (AISTATS), 2018.
Program Committee, Association for the Advancement of Artificial Intelligence (AAAI), 2018.
Reviewer, Neural Information Processing Systems (NeurIPS), 2017.
Program Committee, International Conference on Machine Learning (ICML), 2017.
Subreviewer, Conference on Learning Theory (COLT), 2017.
Program Committee, International Conference on Artificial Intelligence and Statistics (AISTATS), 2017.
Program Committee, International Conference on Machine Learning (ICML), 2016.

Invited Talks

"Interactive Machine Learning," Visiting Weekend, University of Arizona, March 2023.

"PopArt: Efficient Sparse Regression and Experimental Design for High- Dimensional Interactive Machine Learning," Missouri University of Science and Technology, September 2022.

"PopArt: Efficient Sparse Regression and Experimental Design for High- Dimensional Interactive Machine Learning," Seoul National University, South Korea, July 2022.

"Maillard Sampling: Boltzmann Exploration Done Optimally," {Korea Advanced Institute of Science and Technology, Pohang University of Science and Technology, Korea Advanced Institute of Science and Technology, Seoul National University}, South Korea, June 2022.

"Maillard Sampling: Boltzmann Exploration Done Optimally," RL Theory Seminars (Virtual), May 2022.

"Maillard Sampling for Interactive Machine Learning: Boltzmann Exploration Done Optimally", TRIPODS Seminar, University of Arizona, April 2022.

Guest lecture in Math 586B, "Recent Developments of Interactive Machine Learning using Bandit Algorithms", University of Arizona, February 2022.

Tutorial: "Recent Developments of Interactive Machine Learning using Bandit Algorithms," SAARC

Workshop on Mathematics and Machine Learning at Korea Advanced Institute of Science and Technology, South Korea, August 2021.

"Recent Developments on Logistic Linear Bandits," {Ulsan National Institute of Science and Technology, Pohang University of Science and Technology, Korea Advanced Institute of Science and Technology, Seoul National University}, South Korea, June 2021.

"Crush Optimism with Pessimism: Structured Bandits Beyond Asymptotic Optimality," RL Theory Seminars (Virtual), July 2020.

"Crush Optimism with Pessimism: Structured Bandits Beyond Asymptotic Optimality," at ICML'20 workshop on theoretical foundations of reinforcement learning, July 2020.

"Accelerating discovery rate in adaptive experiments via bandits with low-rank structure", TRIPODS RWG6 Seminar, University of Arizona, September 2019.

"Adaptive data collection for accelerating discovery rates", Arizona Days Conference, May 2019.

"Adaptive data collection for accelerating discovery rates", TRIPODS Seminar, University of Arizona, September 2019.

"Accelerating discovery rate in adaptive experiments via bandits with low-rank structure", Microsoft, Cambridge, MA, July 2019.

"Accelerating discovery rate in adaptive experiments via bandits with low-rank structure", University of Arizona, Tucson, AZ, April 2019.

"Adapting to changing environments in online learning", Boston University, Open AIR: Industry Open House, Boston, MA, October 2018.

"Scalable Generalized Linear Bandits: Online Computation and Hashing", University of Wisconsin-Madison, Madison, WI, October 2017.

"Multi-Armed Bandit Algorithms and Applications to Experiment Selection", University of Wisconsin-Madison, Center for Predictive Computational Phenotyping Annual Retreat, Madison, WI, June 2016.

"Top Arm Identification in Multi-Armed Bandits with Batch Arm Pulls", University of Wisconsin-Madison, Madison, WI, March, 2016.

"Measuring semantic structure from verbal fluency data with the initial-visit-emitting (INVITE) random walk", University of Wisconsin-Madison, Madison, WI, November, 2015.

"Learning from Human-Generated Lists", Toyota Technological Institute at Chicago, Chicago, IL, March, 2015.

Industry Experience

Eric and Wendy Schmidt's Data Science for Social Good **Chicago, IL**
Fellow *Summer 2013*
Supervisor: Elena Eneva and Rayid Ghani
Project: "Smarter Crisis Crowdsourcing." Developed natural language processing tools for automatic event tagging (e.g., categorization) in a crisis crowdsourcing framework.

@WalmartLabs **San Bruno, CA**
Member of Technical Staff Internship *Summer 2012*
Supervisor: Yannis Pavlidis
Project: "Personal Event Detection in Twitter"

Robert Bosch LLC **Palo Alto, CA**
Research Internship *Summer 2011*
Supervisor: Dr. Soundar Srinivasan
Project: "Data Mining for Smart Medical Logic"

Teaching

University of Arizona **Tucson, AZ, USA**

Computer Science Department

CSC588 Machine Learning Theory	Spring 2023
CSC380 Principles of Data Science	Fall 2022
CSC380 Principles of Data Science	Spring 2022
CSC580 Principles of Machine Learning	Fall 2021
CSC580 Principles of Machine Learning	Fall 2020
CSC665 Online Learning and Multi-armed Bandits	Spring 2020

University of Wisconsin-Madison **Madison, WI, USA**

Department of Computer Sciences

Teaching Assistant – Introduction to Programming	Fall 2009
Teaching Assistant – Introduction to Data Structure	Fall 2009

Soongsil University **Seoul, South Korea**

School of Computing

Teaching Assistant – Numerical Algebra	Spring 2009
Programming Language Tutor	Spring 2009

Outreach and Public Service

Panelist on "What is Data Science?" at Research Bazaar Arizona, Tucson AZ, May 2021.

Mentor for Women in STEM Mentorship Program (Mentee: Nuzhat Mastura, first year CS), September 2020 - April 2021.