Harang Ju

harang@mit.edu
harangju.com

Positions

2022 – present **Postdoctoral associate** |Initiative on the Digital Economy | MIT Sloan
2024 – present **Technical advisor** | Moku
2017 – 2022 **Ph.D. candidate** | Neuroscience | University of Pennsylvania
2015 – 2017 **Research assistant** | Systems Neurodynamics Lab | University of Virginia
Summer 2016 **Research assistant** | Center for Brain Immunology & Glia | University of Virginia
2013 – 2014 **Research assistant** | Radiation Oncology | University of Virginia
Summer 2013 **Intern** | iOS Development | WillowTree Inc.
Summer 2010 **Intern** | Technology Center | National Radio Astronomy Observatory

Education

University of Pennsylvania 2017 — 2022
Ph.D. Neuroscience
Advisor: Dani S. Bassett, J. Peter Skirkanich Professor

University of Virginia 2012 — 2016
B.S. Computer Science
B.A. Cognitive Science

Publications

Shubhankar Patankar, Dale Zhou, Christopher W Lynn, Jason Z Kim, Mathieu Ouellet, **Harang Ju**, Perry Zurn, David M Lydon-Staley, Dani S Bassett. Curiosity as filling, compressing, and reconfiguring knowledge networks. *Collective Intelligence* (2023) article

Harang Ju, Dale Zhou, Ann S. Blevins, David M. Lydon-Staley, Judith Kaplan, Julio R. Tuma, Danielle S. Bassett. Historical growth of concept networks in Wikipedia. *Collective Intelligence* (2022) article

Harang Ju, Jason Z Kim, Danielle S. Bassett. Network structure of cascading neural systems predicts stimulus propagation and recovery. *Journal of Neural Engineering* (2020) article

Harang Ju, Danielle S. Bassett. Dynamic representations in networked neural systems. *Nature Neuroscience* (2020) article

Evelyn Tang, **Harang Ju**, Graham L Baum, David R Roalf, Theodore D Satterthwaite, Fabio Pasqualetti, Danielle S Bassett. Control of brain network dynamics across diverse scales of space and time. *Physical Review E* (2020) article

Pragya Srivastava, Erfan Nozari, Jason Z. Kim, **Harang Ju**, Dale Zhou, Cassiano Becker, Fabio Pasqualetti, Danielle S. Bassett. Models of communication and control for brain networks: distinctions, convergence, and future outlook (2020) article

Harang Ju, Costa M. Colbert, William B Levy. Limited synapse overproduction can speed development but sometimes with long-term energy and discrimination penalties. *PLOS Computational Biology* (2017) article

Harang Ju, Siyong Kim, Paul Read, Daniel Trifiletti, Andrew Harrell, Bruce Libby, Taeho Kim. Development of a novel remote-controlled and self-contained audiovisual- aided interactive system for immobilizing claustrophobic patients. *Journal of Applied Clinical Medical Physics* (2015) article

Under Review

Harang Ju, Madhav Kumar, Ehsan Valavi, Sinan Aral. Explaining Sustained Blockchain Decentralization with Quasi-Experiments: Resource Flexibility of Consensus Mechanisms. *Revise & resubmit at **Information Systems Research***.

Harang Ju, Ehsan Valavi, Madhav Kumar, Sinan Aral. Are Blockchains Centralizing or Decentralizing? A Framework for Longitudinal Analysis. *Revise & resubmit at **Communications of the ACM***.

Working Paper

Harang Ju, Sinan Aral. Collaborating with AI Agents: Large-Scale Experiments on Teamwork, Productivity, and Performance. ***Job Market Paper***

Harang Ju, Michael Zhao, Sinan Aral. Do Paid Ads Complement Organic Traffic for Long Tail Brands? A Large-Scale Mobile Field Experiment.

Harang Ju, Georgios Petropoulos. Resale Royalties for Digital Goods.

Work in Progress

Harang Ju, Sinan Aral. Tuning the AI Gender Gap: Large-Scale Experiments on Agents, Gender, and Productivity.

Invited Talks

November 2020	*The network structure of scientific revolutions*. Center for Science of Science and Innovation. Kellogg School of Management, Northwestern University.

Conferences

October 2024	Talk, Conference on Information Systems and Technology, Seattle, WA.
April 2024	Talk, 2024 NSF/CEME Decentralization Conference, Vanderbilt, Nashville, TN.
December 2023	Talk, Workshop on Information Systems and Economics, Hyderabad, India.
November 2023	Poster, Conference on Digital Experimentation @ MIT, Cambridge, MA.
December 2022	Talk, Crypto-Marketing Conference. Columbia Business School, New York.
March 2021	Poster, American Physical Society March Meeting. Virtual.
September 2019	Poster, Cognitive Computational Neuroscience. Berlin, Germany.
May 2019	Poster, Context and Episodic memory Symposium. Philadelphia, PA.

May 2019	Talk & poster, Sackler Colloquia: Brain Produces Mind by Modeling. Irvine, CA.
November 2018	Poster, Society for Neuroscience. San Diego, CA.

Teaching

Fall 2024	**Teaching Assistant** | Digital Marketing 15.570 | MIT Sloan
Fall 2024	**Guest Lecture** | Web3 15.562 | MIT Sloan *Blockchain, Web3, and Gaming*
Fall 2022-24	**Project Mentor** | Analytics Lab 15.572 | MIT Sloan
Fall 2020	**Guest Lecture** | BE566: Network Neuroscience | University of Pennsylvania | *Case Study: The network structure of scientific revolutions*
Fall 2019	**Teaching Assistant** | BBB249: Cognitive Neuroscience | University of Pennsylvania
Fall 2019	**Guest Lecture** | BE566: Network Neuroscience | University of Pennsylvania | *Case Study: Network Structure and Dynamics in Cascading Neural Systems*
Spring 2016-17	**Teaching Assistant** | BME3636: Neural Network Models | University of Virginia

Awards

2023 Workshop on Information Systems and Economics (WISE): Best Paper Award Nominee
2019 Travel award to attend Sackler Colloquia: Brain Produces Mind by Modeling
2018 Fine Science Tools travel award to attend Society for Neuroscience conference
2016 Rader Award for Undergraduate Research for Thesis Project, UVA
2012 Rodman scholar (top 5% of prospective engineering students), UVA
2012 QuestBridge finalist

Patents

Taeho Kim, **Harang Ju**, Siyong Kim. Intrafractional motion reduction system using audiovisual-aided interactive guidance and related methods thereof. US 2017/0231530 A1, United States Patent and Trademark Office, 17 August 2017.

Skills

Programming: python, pandas, web (NextJS, React, Vue), R, MATLAB, java, bash, iOS, C++, git
Languages: English (native), Korean (fluent)
Office: Excel, VBA, Alteryx Designer Core certified

Last updated: 2024.11.24