

Inho Hong

Postdoctoral Research Fellow

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Education	Ph.D. in Physics, POSTECH , Pohang, Korea - Thesis: Complexity and Scaling in Cities - Advisor: Woo-Sung Jung (Complexity in Social System Lab)	2013.03 - 2019.08
	M.S. in Physics, POSTECH , Pohang, Korea - Advisor: Hyeon K. Park	2010.03 - 2012.02
	B.S. in Physics, POSTECH , Pohang, Korea	2006.03 - 2010.02

Position	Max Planck Institute for Human Development , Berlin, Germany Postdoctoral Research Fellow - Center for Humans and Machines (Director: Iyad Rahwan) - Machines and the Future of Work Group (PI: Alex Rutherford)	2020.03 - present
	Seoul Institute of Technology , Seoul, Korea Visiting Researcher	2020.08 - 2020.12
	Asia Pacific Center for Theoretical Physics , Pohang, Korea Postdoctoral Research Fellow - Statistical Physics of Complex Dynamics Lab (Leader: Hang-Hyun Jo)	2019.09 - 2020.02
	Kellogg School of Management, Northwestern University , USA Northwestern Institute on Complex Systems , USA Visiting Predoctoral Fellow (Host: Hyejin Youn)	2017.10 - 2018.08

Interest	Social mobilization Social networks, polarized mobilization, social influence, open challenges.
	Future of work Product (industry) space, innovation, occupation and skill, employment, revealed comparative advantage.
	Science of cities Urban scaling, urban economy, intracity mobility, population distribution, urban recapitulation, universality.
	Human mobility

Gravity model, radiation model, numerical simulation, transportation network, migration.

Science of science

Knowledge space, topic modelling, citation network, collaboration network, bibliometric dataset.

Visiting	Institute for Basic Science, Korea	2020.02
	Data Science Group (Chief Investigator: Meeyoung Cha)	
	Harvard Kennedy School, Harvard University, USA	2017.06
	Growth Lab (Director: Ricardo Hausmann), Center for International Development	
	Santa Fe Institute, USA	2016.02
	Graduate Studies Program	
	Aalto University, Finland	2015.02
	Department of Biomedical Engineering and Computational Science	

Teaching	Department of Physics, POSTECH	
	Teaching assistant, Analytical Mechanics	Spring 2013
	Teaching assistant, Electrodynamics I	Spring 2011
	Teaching assistant, Electronics & Instrumentation Lab	Fall 2010
	Teaching assistant, Electronics & Instrumentation Lab	Spring 2010

Project	Physicia upgrade	
	Upgrade and develop educational software “Physicia” for demonstrating simulations on statistical physics and nonlinear dynamics [LINK].	2016.03 - 2016.09

Honor	Global Ph.D. Fellowship Program	
	National Research Foundation of Korea (NRF) (USD 25,000/yr).	2014.03 - 2017.02
	Samsung Undergraduate Scholarship	2006.03 - 2010.02
	Excellent Poster Presentation Award	
	2017 Korean Physical Society Spring Meeting	2017.04
	2013 Korean Physical Society Fall Meeting	2013.10
	Excellent Oral Presentation Award	
	2016 Korean Physical Society Fall Meeting	2016.10
	Excellent Teaching Assistant Award	
	Electronics & Instrumentation Lab, Dept. of Physics, POSTECH	Fall 2010
	Electronics & Instrumentation Lab, Dept. of Physics, POSTECH	Spring 2010

Best Paper Award

Undergraduate Research Program, POSTECH

2010.02

Excellent Bachelor Thesis Award

Department of Physics, POSTECH

2009.11

Article	<p>“Open data and COVID-19: Wikipedia as an informational resource during the pandemic”, <i>Medium</i>, Apr 16, 2020.</p> <p>“Open data and COVID-19: Language diversity on Wikipedia”, <i>Medium</i>, May 14, 2020.</p>
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Working paper	<p>A. Rutherford, M. Cebrian, I. Hong and I. Rahwan, “Impossible by Conventional Means: Ten Years on from the DARPA Red Balloon Challenge”, <i>arXiv preprint arXiv:2008.05940</i>.</p> <p>I. Hong[†], A. Rutherford and M. Cebrian, “Social mobilization and polarization can create volatility in COVID-19 US pandemic control”, <i>under review</i>. [†]Corresponding author.</p> <p>O.-H. Kwon*, I. Hong*, J. Yang, D. Y. Wohn, W.-S. Jung and M. Cha, “Urban green space and happiness in developed countries”, <i>under review</i>. *Equally contributed.</p> <p>I. Hong[†], L. Ferreira, A. Rutherford and M. Cebrian, “Epidemic-driven conflicts and conflict-driven epidemics”, <i>in preparation</i>. [†]Corresponding author.</p> <p>I. Hong[†], M. Kwon[†], J. Kim, S. Na and W.-S. Jung, “Urban scaling and transition in Korean economy”, <i>in preparation</i>. ^{†‡}Corresponding authors.</p> <p>C. Jung, D. Saez-Trumper, I. Hong, M. Cha, “Open Wikipedia Dataset on COVID-19”, <i>in preparation</i>.</p>
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Publication	<p>I. Hong, M. R. Frank, I. Rahwan, W.-S. Jung and H. Youn, “The universal pathway to innovative urban economies”, <i>Science Advances</i> 6, eaba4934 (2020). [arXiv].</p> <p>- Media coverage: Quartz, Fast Company, Northwestern NOW and Maeil Business Newspaper (in Korean).</p> <p>I. Hong, W.-S. Jung and H.-H. Jo, “Gravity model explained by the radiation model on a population landscape”, <i>PLoS ONE</i> 14, e0218028 (2019).</p> <p>H. Kim[†], I. Hong[†] and W.-S. Jung, “Measuring national capability over big science’s multidisciplinary: A case study of nuclear fusion research”, <i>PLoS ONE</i> 14, e0211963 (2019). - [†]Equally contributed</p> <p>I. Hong and W.-S. Jung, “Application of gravity model on the Korean urban bus network”, <i>Physica A</i> 462, 48-55 (2016).</p>
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S. Lee, **I. Hong**, W.-S. Jung, “A network approach to the transfer market of European football leagues”, *New Physics: Sae Mulli* 65, 402-409 (2015).

I. Hong *et al.*, “Evaluation of the imaging properties of Microwave Imaging Reflectometry”, *Journal of Instrumentation* 7, C01077 (2012).

W. Lee *et al.*, “Microwave imaging reflectometry system for KSTAR”, *Plasma and Fusion Research* 6, 2402037-2402037 (2011).

W. Lee *et al.*, “Comparative study between the reflective optics and lens based system for microwave imaging system on KSTAR”, *Review of Scientific Instruments* 81, 10D932 (2010).

H. K. Park *et al.*, “Microwave imaging reflectometry studies for turbulence diagnostics on KSTAR”, *Review of Scientific Instruments* 81, 10D933 (2010).

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- Oral talk **I. Hong**, A. Rutherford, L. N. Ferreira, M. Cebrian, “Epidemic-driven conflict and conflict-driven epidemics”, *Complex Networks 2020*, Dec 1-3, 2020.
- A. Rutherford, M. Cebrian, **I. Hong**, Iyad Rahwan, “Social mobilization impeded by political polarization”, *NetSci 2020*, Sep 21-25, 2020.
- I. Hong**, A. Rutherford, L. N. Ferreira, M. Cebrian, “Epidemic-driven conflict and conflict-driven epidemics”, *NetSci 2020*, Sep 21-25, 2020.
- T. You, O.-H. Kwon, **I. Hong**, W.-S. Jung, “Alliance structure between UN Security Council members from debates”, *NetSci 2020*, Sep 21-25, 2020.
- I. Hong** *et al.*, “Urban economies recapitulate a common trajectory”, *4th Annual International Conference on Computational Social Science*, Jul 12-15, 2018.
- I. Hong**, W.-S. Jung and H. Youn, “Who is the shepherd? Small city follows trajectory of larger cities in their economic compositions”, *Conference on Complex Systems 2017*, Sep 17-22, 2017.
- I. Hong**, W.-S. Jung and H. Youn, “Small city follows larger city’s trajectory in urban economy”, *The 19th Workshop for Statistical Physics*, Aug 28-30, 2017.
- I. Hong**, W.-S. Jung and H. Youn, “Structural change in urban industry”, *APCTP 2016 Workshop on Frontiers of Physics: Push the Envelope of Statistical Physics: Econo, Social, Bio and Beyond*, Dec 14, 2016.
- I. Hong**, W.-S. Jung and H. Youn, “Structural change in urban economy through creative destruction”, *DISC 2016*, Dec 9, 2016.
- I. Hong**, H. Kim and W.-S. Jung, “Knowledge Structure of Nuclear Fusion Research”, *2016 Korean Physical Society Fall Meeting (Excellent Oral Presentation Award)*, Oct 20, 2016.
- H. Kim, **I. Hong** and W.-S. Jung, “Fusion of nations, fusion of disciplines: network evolution in nuclear fusion research”, *2016 Conference on Complex Systems*, Sep 20, 2016.

- I. Hong**, W.-S. Jung and H. Youn, “Creative destruction in urban economy: industrial trajectory in time and space”, *NetSci 2016 Satellite Meeting*, May 30, 2016.
- I. Hong et al.**, “Industrial Dynamics in Urban Areas”, *Application of Econophysics and Social Physics: Winter Workshop*, Feb 22-23, 2016.
- I. Hong** and W.-S. Jung, “Gravity and Radiation Models for the Korean Bus Network”, *Physics of Social Complexity Workshop*, Nov 2-4, 2015.
- I. Hong** and W.-S. Jung, “Gravity and Radiation Models for Intra-Urban Mobility by the Korean Urban Bus System”, *The 18th Workshop for Statistical Physics*, Aug 21, 2015.
- I. Hong** and W.-S. Jung, “Application of the Gravity and Radiation Models on the Korean Urban Bus Network”, *2015 Korean Physical Society Spring Meeting*, Apr 22, 2015.
- I. Hong** and W.-S. Jung, “Statistical Analysis and Modeling of the Korean Urban Bus Network”, *Social Modeling and Simulations + Econophysics Colloquium 2014*, Nov 4, 2014.
- I. Hong** and W.-S. Jung, “Network Analysis of the Urban Bus System in Korea”, *Application of Econophysics and Social Physics: Summer Workshop*, Aug 22, 2014.
- I. Hong**, W.-S. Jung, “Intra-City Bus Network Analysis on the Korean Cities for Understanding Urban Structures”, *The 17th Workshop for Statistical Physics*, Nov 2, 2013.
- I. Hong** and W.-S. Jung, “Intra-city Bus Network in Korean Mid-size Cities”, *Econophysics Colloquium 2013 & Asia Pacific Econophysics Conference 2013*, Jul 30, 2013.

Poster

- I. Hong**, M. Kwon, J. Kim, S. Na, W.-S. Jung, “Urban scaling and transition in Korean economy”, *2020 Korean Physical Society Fall Meeting*, Nov 4-6, 2020.
- O.-H. Kwon, **I. Hong**, W.-S. Jung and H.-H. Jo, “Explaining the varying exponent of gravity model on urban landscapes”, *2020 Korean Physical Society Fall Meeting*, Nov 4-6, 2020.
- I. Hong et al.**, “Cities recapitulate a universal pathway to innovative economies”, *NetSci-X 2020*, Jan 20-23, 2020.
- I. Hong**, W.-S. Jung and H.-H. Jo, “Unifying Framework of Mobility Models on Population Landscape”, *2017 Korean Physical Society Spring Meeting (Excellent Poster Presentation Award)*, Apr 19-21, 2017.
- I. Hong**, W.-S. Jung, “Comparison of Traffic Models for the Korean Bus System”, *2015 Korean Physical Society Fall Meeting*, Oct 22, 2015.
- I. Hong** and W.-S. Jung, “Network Modeling of the Korean Urban Bus Network”, *2014 Korean Physical Society Fall Meeting*, Oct 23, 2014.

B.-H. Lee, **I. Hong** and W.-S. Jung, “Complex Network Analysis of the Korean Transportation Network”, *The 15th Asia Pacific Industrial Engineering and Management Systems Conference*, Oct 12-15, 2014.

B.-H. Lee *et al.*, “Statistical Properties of the Korean Transportation Network as a Complex Network”, *European Conference on Complex Systems '14*, Sep 23, 2014.

I. Hong and W.-S. Jung, “Intra-City Bus Network Analysis on the Korean Cities for Understanding Urban Structures”, *Korean Physical Society 2013 Fall Meeting (Excellent Poster Presentation Award)*, Oct 31, 2013.

I. Hong, “Investigation on Intra-city Bus Network in Cheongju”, *The 5th International Symposium on IT Convergence Engineering*, Jul 11-12, 2013.
