Chan Y. Park

github.com/chan-y-park linkedin.com/in/chan-youn-park

Experience

Principal Research Scientist, KC Machine Learning Lab (ML2) Korea, *May 2018 – Present*

- Built ML2, an independent research group within KC, a semiconductor and display solutions company, from the ground up with a focus on advanced machine learning research and engineering.
- Managed a group of machine learning researchers, software engineers, and user experience researchers to publish papers in top-tier conferences and journals and to start several open-source software projects.

Co-Founder & CTO, Moru Labs Korea, *Jul. 2018 – Apr. 2021*

- Built a data-based personalized cosmetics recommendation system and manufacturing platform.
- Managed the development of iOS and Android mobile apps for providing personalized cosmetics data.

Fellow, Insight Artificial Intelligence Program New York, US, *Jul. 2017 – Oct. 2017*

- Built a deep learning project covering computer vision, natural language processing, and web service for data visualization, which is presented to 10+ start-ups in the greater NY area.

Postdoctoral Associate, Rutgers University New Jersey, US, *Sep. 2014 – Aug. 2017*

- Performed numerical and analytic studies of supersymmetric gauge theories.
- Developed a full-stack web application to study Seiberg-Witten theory, presented at 2016 Scientific Python conference, https://chan-y-park.github.io/blog/scipy_2016_talk.html.

Research Staff, Park Systems Korea, *Oct. 2004 – Dec. 2005*

- Built an embedded operating system for an atomic force microscope (AFM) electronic controllers based on Motorola Sandpoint reference platform, including customizing the kernel and the device drivers of NetBSD.
- Developed a prototype force constant calibration module of AFM cantilevers in collaboration with National Physical Laboratory, UK.

Research Staff, Softwise Korea, *Oct. 2003 – Oct. 2004*

- Developed a web search engine query recommendation system for NATE.com, a top 3 web portal in Korea.
- Created administrative user interface of Yahoo! Korea DB search.

Education

Ph.D. in Physics, California Institute of Technology California, US, *Oct. 2007 – Jun. 2014*

- Studied theoretical physics, specifically supersymmetric gauge theories and string theory.
- Invited to present academic talks at various conferences and seminars.
- Thesis – Branes and Supersymmetric Quantum Field Theories

B.S. in Physics, Seoul National University Korea, *Mar. 2001 – Oct. 2003, Mar. 2006 – Aug. 2007*

- Minor in Mathematics, summa cum laude and ranked 1st in the Department of Physics.

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List of Selected Publications

Machine Learning

- Park, Juho[†], Kim, Sanmun[†], Nam, Daniel Wontae, Chung, Haejun[*], **Park, Chan Y.**[*] and Jang, Min Seok[*]. "Free-form optimization of nanophotonic devices: from classical methods to deep learning" Nanophotonics, https://doi.org/10.1515/nanoph-2021-0713
- Dongjin Seo[†], Daniel Wontae Nam[†], Juho Park, **Chan Y. Park**[*], Min Seok Jang[*]. "Structural optimization of 1D freeform metagrating deflector via deep reinforcement learning", ACS Photonics, https://doi.org/10.1021/acsphotonics.1c00839
- Kim, Sanmun[†], Shin, Jeong Min, Lee, Jaeho, Park, Chanhyung, Lee, Songju, Park, Juho, Seo, Dongjin, Park, Sehong, **Park, Chan Y.** and Jang, Min Seok[*]. "Inverse design of organic light-emitting diode structure based on deep neural networks", Nanophotonics, vol. 10, no. 18, 2021, pp. 4533-4541. https://doi.org/10.1515/nanoph-2021-0434
- Daniel Wontae Nam[†], Younghoon Kim, **Chan Y. Park**[*], "GMAC: A Distributional Perspective on Actor-Critic Framework", ICML 2021, http://proceedings.mlr.press/v139/nam21a.html

Theoretical High-Energy Physics

All co-first author papers, authors listed in an alphabetical order.

- Gabella, M., Longhi, P., **Park, C.Y.** et al. "BPS graphs: from spectral networks to BPS quivers", J. High Energ. Phys. 2017, 32 (2017). https://doi.org/10.1007/JHEP07(2017)032
- Longhi, P., **Park, C.Y.** "ADE spectral networks and decoupling limits of surface defects", J. High Energ. Phys. 2017, 11 (2017). https://doi.org/10.1007/JHEP02(2017)011
- Longhi, P., **Park, C.Y.** "ADE spectral networks", J. High Energ. Phys. 2016, 87 (2016). https://doi.org/10.1007/JHEP08(2016)087.
- Maruyoshi, K., **Park, C.Y.** & Yan, W. "BPS spectrum of Argyres-Douglas theory via spectral network", J. High Energ. Phys. 2013, 92 (2013). https://doi.org/10.1007/JHEP12(2013)092.
- Hori, K., **Park, C.Y.** & Tachikawa, Y. "2d SCFTs from M2-branes", J. High Energ. Phys. 2013, 147 (2013). https://doi.org/10.1007/JHEP11(2013)147.
- **Park, C.Y.** "Ramification points of Seiberg-Witten curves", J. High Energ. Phys. 2011, 68 (2011). https://doi.org/10.1007/JHEP07(2011)068