Yeongjae Choi
Postdoctoral Research Fellow

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Wyss Institute for Biologically Inspired Engineering, Harvard University

Education

- **Seoul National University** — Seoul, Republic of Korea
  Ph.D, Electrical and Computer Engineering; Advisor: Prof. Sunghoon Kwon — *2012 – 2018*
- **Seoul National University** — Seoul, Republic of Korea
  BS, Electrical and Computer Engineering — *2007 – 2012*

Experience

- **Postdoctoral Research Fellow** — Wyss Institute for Biologically Inspired Engineering, Harvard University
  Advisor: Prof. Peng Yin — *Jan 2020 -*
- **Postdoctoral Research Fellow** — Nano Systems Institute , Seoul National University
  Advisor: Prof. Sunghoon Kwon — *Sep 2018 - Dec 2019*
  - **DNA-based data storage**: Developed low-cost, high density DNA-based data storage system (Funded by Samsung Research Funding and Incubation Center for Future Technology).
  - **Microrobotics**: Developed bio-mimetic polymeric/electric smart machines swimmer (Funded by the National Research Foundation of Korea funded by the Ministry of Education).
- **Graduate Research Assistant** — Electrical and Computer Engineering, Seoul National University
  Advisor : Prof. Sunghoon Kwon — *Sep 2012 - Aug 2018*
  - **DNA nanotechnology**: Developed DNA-origami based nanoscale system including shape changing lattices and diameter changing nanopores.
  - **DNA synthesis**: Developed automated platform for synthesizing high-quality, error-free DNA oligonucleotide. Collaboration with Celemics, Inc.
- **Mentor** — Korea Institute of Human Resources Development
  'Nano optimus prime team' — *Aug 2019 - Mar 2020*
  - **Next-generation aptamer development**: Advised the team of graduated students to develop next-generation aptamer, based on next generation sequencing and nanorobotics.
- **Teaching Assistant** — Electrical and Computer Engineering, Seoul National University
  Topics in Semiconductor Devices — *Mar 2013 - Aug 2013*
- **Guest Lecturer** — Department of Electronics and Radio Engineering, Kyung Hee University
  Microelectromechanical Systems — *Sep 2019*

Honors and Awards

- **Distinguished Dissertation Award**: Seoul National University, 2019.
- **Global Ph.D fellowship**: Received 30 million KRW (270000 USD) a year. Ministry of Education, 2013-2018.
- **National Science Technology Scholarship**: Full-tuition scholarship. Ministry of Education, 2007-2012
- **Army Commendation Medal**: US ARMY, 2011

Publication List

[1] **Y. Choi**, H. Bae, A. C. Lee, H. Choi, D. Lee, T. Ryu, J. Hyun, S. Kim, H. Kim, S. Song, W. Park, S. Kwon, DNA Micro-disk for Management of DNA-based Data Storage with Index and Write-once-read-many (WORM) Memory Features. ***Under Review***.

[2] **Y. Choi**, T. Ryu, A. C. Lee, H. Choi, H. Lee, J. Park, S. Song, S. Kim, H. Kim, W. Park, S. Kwon, High information capacity DNA-based data storage with augmented encoding characters using degenerate bases. ***Scientific Reports*** 9, 6582 (2019). Featured in "Expanding DNA storage capacity", *Science*, 366, 6462 (2019).

[3] **Y. Choi**, H. Choi, A. C. Lee, H. Lee, S. Kwon, A Reconfigurable DNA Accordion Rack. ***Angew. Chemie Int. Ed.*** 57, 28112815 (2018).

[4] **Y. Choi**, H. Choi, A. C. Lee, S. Kwon, Design and Synthesis of a Reconfigurable DNA Accordion Rack. ***J. Vis. Exp.*** (138), e58364 (2018).

Patent List

[1] S. Kwon, T. Ryu, **Y. Choi**, Y. Jung, H. Kim, H. Lee, Method of Isolating Biochemical Molecules on Microarray Substrate, KR20160019913A, KR101595159B1, CN104884957B, EP2919008A4, US20150322485A1. ***Grant, transferred to Celemics, Inc***.
[2] S. Kwon, W. Park, **Y. Choi**, H. Bae, T. Ryu, S. Song, Apparatus and Method for Automatically Coating Hydrogel Particles, KR 101879585. ***Grant***.
[3] S. Kwon, T. Ryu, **Y. Choi**, W. Park, S. Song, H. Kim, S. Kim, DNA Digital Data Storage Device and Method, and Decoding Method of DNA Digital Data, KR 1020180042269, US 16/138,123. ***Pending***.
[4] S. Kwon, W. Park, **Y. Choi**, H. Bae, T. Ryu, S. Song, Biochemical carrier capable of storing, preserving and indexing, and manufacturing method thereof, KR 1020170128986, US 16/335,296, ***Pending***.