Curriculum Vitae

Name: Hong-Yeop Song

Current Work Address:

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Education
- ☐ Ph.D.   University of Southern California, Los Angeles, CA, Dec 1991.
- ☐ MSEE   University of Southern California, Los Angeles, CA, May 1986.
- ☐ BSEE   Yonsei University, Seoul, Korea, Feb 1984.

Employment History
- ☐ Professor, Yonsei University, Seoul, Korea, March 2003 – Current.
- ☐ Visiting Professor, University of Waterloo, Canada, March 2002 – Feb 2003.
- ☐ Associate Professor (Tenured), Yonsei University, Seoul, Korea, March 1998 – Feb 2003.
- ☐ Assistant Professor, Yonsei University, Seoul, Korea, Sept 1995 – Feb 1998.
- ☐ Senior Engineer, Qualcomm Inc., San Diego, CA, April 1994 – Aug 1995.
- ☐ Research Associate, Communication Sciences Institute, USC, Los Angeles, Jan 1992 – March 1994.

Graduate Students Supervising
- ☐ Current: 3 MS-program students and 4 PHD-program students
- ☐ Supervised 48 MS and 11 PHD Thesis's for the past 25 years

Research Lab: Channel Coding Lab (http://coding.yonsei.ac.kr)

Research Interest in General
- ☐ Pseudo-random sequences and related mathematics for digital communications
- ☐ Error-correcting codes for reliable communication (5G/6G) and storage (clouds)

Funded Research Projects
▪ ▪ Engineering Development Projects (Selected)
- ❍ Error-Correcting Codes for Navigation Satellites (KOREA AEROSPACE RESEARCH INST, 2018-)
- ❍ Security of GNSS Signals (AGENCY FOR DEFENCE DEV, 2013-2020)
- ❍ Error-Correcting Codes for Military Networks (AGENCY FOR DEFENCE DEV, 2013-2020)
- ❍ Low-Density Codes over Binary Erasure Channels (ETRI, 2008)
- ❍ Efficiently Encoded LDPC Codes (SAMSUNG ELECTRONICS, 2002-2007)
- ❍ Analysis and Design of Channel Codes for DVD (LG ELECTRONICS, 2001)
- ❍ Design of Frequency-Hopping Codes (AGENCY FOR DEFENCE DEV, 2002-2004)

▪ ▪ Pure Research Projects (Selected)
- ❍ Error-correcting codes for 6G (NRF, 2020-2022)
- ❍ PN sequences design for multiple access in 5G/6G (NRF, 2017-2019)
- ❍ Reliable Storage codes for Cloud (NRF, 2013-2016)
- ❍ Network Coding and related area (NRF, 2009-2011)
- ❍ Sequences for Communication and Cryptography (KOSEF, 2003-2006)
- ❍ Study on Poly-phase Power Residue Sequences (KRF, 2003-2004)
- ❍ Cyclic Hadamard Matrices and their Applications (KOSEF, 1997-1999)

Patents

- ☐ 13 international patents including 4 pending:
  - ✓ Design of Nonlinear Boolean Function for Encryption Algorithm.
  - ✓ Method for encoding/decoding concatenated LDGM code
  - ✓ Design of Interleaver on Parallel-Structured Turbo Codes Using Interleaver of Short Length
  - ✓ Method of constructing QC-LDPC codes using qth-order power residue
- ☐ 12 domestic patents including 5 pending

Technical Activity for Academic Society and International Conference

- Member, National Academy of Engineers in Korea (since 2020)
- Member (since 1988) and Senior Member, IEEE (since 2007)
- Member, Mathematical Association of America (since 1992)
- Member of Editorial Committee: Transactions of KIISC (since 2003)
- Member of Board: Korea Institute of Information Security and Cryptology (since 2005)
- Member of Board: Korea Information and Communications Society (since 2008)
- Technical Member: Research Society of Mobile Communications, KICS (since 1998)
- Technical Member: Research Society of Coding and Information Theory, KICS (since 1997)

Awards

- Hae-Dong Academic Award, 2018, KICS
- Contribution Award, 2017, Korean Mathematics Society (KMS)
- ITW Conference Organizer Recognition, 2016 IEEE Information Theory Society
- Best Paper Award, 2015 KICS
- Best Research Funding Recognition, 2012 Yonsei University
- Special Contribution Award, 2011 IEEE MWSCAS
- Best Paper Award, 2003 JCCI

Selected Publication (International Journal)

- Min Kyu Song, Gangsan Kim, **Hong-Yeop Song** and Ki Won Song, "Punctured Bent Function Sequences for Watermarked DS-CDMA," *IEEE Communications Letters*, vol. 23, no. 7, pp. 1194-1197, July 2019.

- Ki-Hyeon Park, **Hong-Yeop Song**, Dae San Kim and Solomon W. Golomb, "Optimal Families of Perfect Polyphase Sequences from the Array Structure of Fermat-Quotient Sequences," *IEEE Transactions on Information Theory*, vol. 62, no. 2, pp. 1076-1086, February 2016.

- Zonduo Dai, Guang Gong, **Hong-Yeop Song** and Dingfeng Ye, "Trace representation and linear complexity of binary e-th power residue sequences of period p," *IEEE Transactions on Information Theory*, vol.57, no.3, pp. 1530-1547, March 2011.

- Guang Gong, Solomon W. Golomb and **Hong-Yeop Song**, "A Note on Low Correlation Zone Signal Sets," *IEEE Transactions on Information Theory*, vol. 53, no. 7, pp. 2575-2581, July 2007.

- Young-Joon Kim and **Hong-Yeop Song**, "Crosscorrelation of Sidel'nikov Sequences and Their Constant Multiples," *IEEE Transaction on Information Theory*, vol.53, no.3, pp. 1220-1224, Mar. 2007.

- Yu-Chang Eun, Seok-Yong Jin, Yun-Pyo Hong and **Hong-Yeop Song**, "Frequency Hopping Sequences with Optimal Partial Autocorrelation Property," *IEEE Transactions on Information Theory*, vol. 50, no. 10, pp. 2438-2442, Oct. 2004.

- **Hong Y. Song**, Irving S. Reed and Solomon W. Golomb, "On the Non-periodic Cyclic Equivalence Classes of Reed-Solomon Codes," *IEEE Transactions on Information Theory*, vol. 39, no. 4, pp. 1431-1434, July 1993.

- **Hong Y. Song**, Solomon W. Golomb and Herbert Taylor, "Progressions in Every Two-coloration of Z_n," *Journal of Combinatorial Theory*, **Series A**, vol. 61, no. 2, pp. 211-221, Nov. 1992.

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