

Song Noh

No 357, 465 Northwestern Avenue, West Lafayette, IN 47907 (Email: songnoh82@gmail.com, Phone: 765-404-3580)

OBJECTIVE To seek an internship or full-time position in the system engineering area especially in physical layer design

EDUCATION **Purdue University** Indiana, USA
Ph.D. Candidate in Electrical and Computer Engineering Aug. 2011 – Present
Advisors: Professors Michael Zoltowski and David Love

Korea Advanced Institute of Science and Technology (KAIST) Daejeon, South Korea
Master of Science in Electrical Engineering Feb. 2010
Advisor: Professor Youngchul Sung

Soongsil University Seoul, South Korea
Bachelor of Engineering in Electrical Engineering Feb. 2008

EXPERIENCE **Purdue University** Indiana, USA
Research Assistant Jan. 2012 - Present

- Multi-resolution codebook and beamforming sequence design in millimeter wave systems
- Pilot beam pattern and hybrid beamforming design in massive MIMO systems
- Precoder design for blind separation and estimation in MIMO-OFDM systems
- Development of a link level simulator based on Digital Video Broadcasting (DVB-T2)
 - Implementation of symbol spreading and frequency/cell/time interleavers with LDPC code

Wireless Information Systems Research Lab Daejeon, South Korea
Researcher Mar. 2010 - Jun. 2011

- Researched user scheduling algorithms for interference alignment via majorization theory

Korea Advanced Institute of Science and Technology (KAIST) Daejeon, South Korea
Research Assistant Feb. 2008 - Feb. 2010

- Linear precoder design for blind channel estimation in MIMO-OFDM systems
- Development of a link level simulator for high mobility environments based on IEEE 802.16e/m
 - Implementation of tone clustering, slot mapping, and bit interleaver with convolutional code

Communication Network Security Lab Seoul, South Korea
Research Intern Oct. 2006 - Feb. 2007

- Development of voice spam control algorithm for Voice over IP systems (VoIP).

Republic of Korea Army Paju, South Korea
Sergeant: Mandatory military service in South Korea Dec. 2002 - Jan. 2005

PUBLICATIONS Journal Articles

Song Noh, Michael Zoltowski, and David Love, “Multi-resolution codebook and adaptive beamforming sequence design in millimeter wave systems,” to be submitted, 2015.

Song Noh, Michael Zoltowski, and David Love, “Training sequence design for feedback assisted hybrid beamforming in massive MIMO systems,” submitted to *IEEE Trans. Commun.*, 2015 (Available at <http://arxiv.org/abs/1407.1786>).

Song Noh, Michael Zoltowski, Youngchul Sung, and David Love, “Pilot beam pattern design for channel estimation in massive MIMO systems,” *IEEE J. Sel. Topics Signal Process.*, vol. 8, no. 5, pp. 787 – 801, Oct. 2014.

Song Noh, Youngchul Sung, and Michael Zoltowski, “A new precoder design for blind channel estimation in MIMO-OFDM systems,” *IEEE Trans. Wireless Commun.*, vol. 13, no. 12, pp. 7011 – 7024, Dec. 2014.

Conference Papers

Song Noh, Michael Zoltowski, and David Love, “Multi-resolution codebook based beamforming sequence design in millimeter-wave systems,” in *Proc. IEEE Globecom*, submitted for publication, 2015.

Song Noh, Michael Zoltowski, and David Love, “Downlink training codebook design and hybrid precoding in FDD massive MIMO systems,” in *Proc. IEEE Globecom*, Austin, TX, Dec. 2014. (**Best Paper Award**)

Song Noh, Michael Zoltowski, Youngchul Sung, and David Love, “Training signal design for channel estimation in massive MIMO systems,” in *Proc. IEEE ICASSP*, Florence, Italy, May 2014.

Song Noh and Michael Zoltowski, “A new precoder design for precoding-based blind channel estimation for MIMO-OFDM systems,” in *Proc. IEEE Globecom*, Atlanta, GA, Dec. 2013.

Song Noh and Michael Zoltowski, “Blind separation for precoding-based blind channel estimation for MIMO-OFDM systems,” in *Proc. Asilomar*, Pacific Grove, CA, Nov. 2013.

Song Noh, Michael Zoltowski, Youngchul Sung, and David Love, “Optimal pilot beam pattern design for massive MIMO systems,” in *Proc. Asilomar*, Pacific Grove, CA, Nov. 2013.

EXTERNAL ACTIVITIES

Reviewer of Journal and Conference Papers

- IEEE Transactions on Communications
- IEEE Transactions on Wireless Communications
- IEEE Transactions on Vehicular Technology
- IEEE Communications Letters
- IEEE Wireless Communications Letters
- IEEE Signal Processing Communications Letters
- IEEE ICC 2015/ IEEE WCNC 2015

Invited Talks

Channel estimation initiatives through training signal design in large-scale MIMO, at Soongsil University, Sep. 2014, and KAIST, Aug. 2014.

Teaching Assistant

Digital Signal Processing I (ECE 538), Purdue University	Fall 2014
Advanced Communication System (EE 522), KAIST	Fall 2009
Communication System (EE 421), KAIST	Spring 2009

AWARDS AND HONORS

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|---|----------------------|
| - IEEE Transactions on Communications Exemplary Reviewer | Apr. 2015 |
| - Silver Prize in the 21st HumanTech Paper Contest sponsored by Samsung | Feb. 2015 |
| - IEEE Global Communications Conference (Globecom) Best Paper Award | Dec. 2014 |
| - Soongsil University Talented Scholar Fellowship | Sep. 2012 - May 2013 |
| - GPA Scholarship, Soongsil University | 2005 - 2007 |

COMPUTER SKILLS

MATLAB, Simulink, C, and C++