

# Junhyung Moon, Ph.D student

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## Education



- 2012 – . . . . . ■ **Master & Ph.D degree integrated course** in Dependable Computing Laboratory, Department of Computer Science, Yonsei University, Seoul, Republic of Korea.
- 2007 – 2012 ■ **Bachelor's degree : Computer Science (certified by Accreditation Board for Engineering Education of Korea)** in Department of Computer Science, Yonsei University, Seoul, Republic of Korea.
- 2004 – 2007 ■ **English major** in Anyang Foreign Language High School, Anyang, Republic of Korea.

## Reserach Interests




- Affective Computing** ■ Mental stress estimation using various physiological, inertial, and audiovisual sensors based on machine learning approaches.
- #1,2,3,4,6 in Conference Proceedings
- Granted by Korean Government, collaborating with research groups of psychology, electrical engineering, communication, etc.
- Biomedical Computing** ■ Estimation of the moment of nocturnal enuresis using various physiological signals based on machine learning approaches.
- #5,7,8,9,10 in Conference Proceedings
- Granted by Korean Government, collaborating with research group of electrical engineering and medical doctors of urology.
- Video Encryption** ■ Privacy protection in resource-constrained video systems considering security level, video quality, and resource budget.
- #11,12,13,14,16 in Conference Proceedings & #1,2 in Journal Articles

## Research Publications


### Conference Proceedings

- 1 Lee, M., **Moon, J.**, Cheon, D., Lee, J., & Lee, K. (2020). Respiration signal based two layer stress recognition across non-verbal and verbal situations. In *Proceedings of the 35th ACM/SIGAPP symposium on applied computing, SAC 2020, brno, czech republic, 2020*.   
Accepted
- 2 Cheon, D., **Moon, J.**, Lee, M., & Lee, K. (2019). Accelerometer - based Gesture Analysis under Stressful Situations for Effective Stress Recognition. (pp. 182–184). The Korean Institute of Information Scientists and Engineers.   
<http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE09301528>

- 3 Lee, M., **Moon, J.**, Cheon, D., Lee, J., & Lee, K. (2019). Stress Recognition Using Variation of Respiration Signals during Being Stressed in the Presence of Speaking. (pp. 179–181). The Korean Institute of Information Scientists and Engineers.   
<http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE09301527>
- 4 **Moon, J.**, Lee, J., Cheon, D., Lee, M., & Lee, K. (2019). Stress recognition with state classification considering temporal variation of stress responses. In *2019 IEEE international conference on bioinformatics and biomedicine, BIBM 2019, san diego, ca, usa, november 18-21, 2019* (pp. 2852–2859). IEEE. doi:10.1109/BIBM47256.2019.8983372
- 5 **Moon, J.**, Lee, K., & Lee, Y. S. (2019). Integrated system of monitoring and intervention for in-home healthcare and treatment. In *Proceedings of the 2019 ACM international joint conference on pervasive and ubiquitous computing and proceedings of the 2019 ACM international symposium on wearable computers, ubicomp/iswc 2019 adjunct, london, uk, september 9-13, 2019* (pp. 393–398). doi:10.1145/3341162.3349313
- 6 Kye, S., **Moon, J.**, Lee, J., Choi, I., Cheon, D., & Lee, K. (2017). Multimodal data collection framework for mental stress monitoring. In *Adjunct proceedings of the 2017 ACM international joint conference on pervasive and ubiquitous computing and proceedings of the 2017 ACM international symposium on wearable computers, ubicomp/iswc 2017, maui, hi, usa, september 11-15, 2017* (pp. 822–829). doi:10.1145/3123024.3125616
- 7 Kye, S., **Moon, J.**, Lee, T., Lee, S., Lee, K., Shin, S., & Lee, Y. S. (2017). Detecting periodic limb movements in sleep using motion sensor embedded wearable band. In *2017 IEEE international conference on systems, man, and cybernetics, SMC 2017, banff, ab, canada, october 5-8, 2017* (pp. 1087–1092). doi:10.1109/SMC.2017.8122756
- 8 Lee, S., **Moon, J.**, Lee, T., Kye, S., Lee, K., Lee, Y. S., & Shin, S. (2017). Sleep stage classification for managing nocturnal enuresis through effective configuration. In *2017 IEEE international conference on systems, man, and cybernetics, SMC 2017, banff, ab, canada, october 5-8, 2017* (pp. 2832–2837). doi:10.1109/SMC.2017.8123056
- 9 **Moon, J.**, Lee, S., Lee, T., Kye, S., Lee, Y. S., Shin, S., & Lee, K. (2017). A prospective study of examining physiological signals for estimating occurrence of nocturnal enuresis. In *2017 39th annual international conference of the IEEE engineering in medicine and biology society (embc), jeju island, south korea, july 11-15, 2017* (pp. 2357–2360). doi:10.1109/EMBC.2017.8037329
- 10 Shin, S., **Moon, J.**, Kye, S., Lee, K., Lee, Y. S., & Kang, H. (2017). Continuous bladder volume monitoring system for wearable applications. In *2017 39th annual international conference of the IEEE engineering in medicine and biology society (embc), jeju island, south korea, july 11-15, 2017* (pp. 4435–4438). doi:10.1109/EMBC.2017.8037840
- 11 **Moon, J.**, So, H., & Lee, K. (2016). Configurable privacy management for secure video surveillance in energy-constrained systems. In *2016 IEEE international conference on systems, man, and cybernetics, SMC 2016, budapest, hungary, october 9-12, 2016* (pp. 3800–3805). doi:10.1109/SMC.2016.7844826
- 12 **Moon, J.** & Lee, K. (2015a). Integrated visual security management for video encryption in limited battery devices. In *13th IEEE symposium on embedded systems for real-time multimedia, estimedia 2015, amsterdam, the netherlands, october 8-9, 2015* (pp. 1–8). doi:10.1109/ESTIMedia.2015.7351773
- 13 **Moon, J.** & Lee, K. (2015b). Spatio-temporal visual security metric for secure mobile video applications. In *Proceedings of the 7th ACM international workshop on mobile video, movid 2015, portland, or, usa, march 18-20, 2015* (pp. 9–14). doi:10.1145/2727040.2727047

- 14 Kim, H., **Moon, J.**, Kim, H., & Lee, K. (2014). Efficient encryption of motion vectors for static video security in h.264. In *Proceedings of the kiise korea computer congress* (pp. 979–981). The Korean Institute of Information Scientists and Engineers.   
<http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE02444244>
- 15 Shin, K., **Moon, J.**, & Lee, K. (2014). A process control technique based on file change management for automatic teller machine security. In *Proceedings of the kiise korea computer congress* (pp. 987–989). The Korean Institute of Information Scientists and Engineers.   
<http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE02444247>
- 16 Lee, J., **Moon, J.**, Kim, S., Park, H., & Lee, K. (2012). An Experimental Study on Video Quality, Performance, and Energy Consumption in Secure Mobile Video Conferencing. In *Proceedings of the kiise korea computer congress* (Vol. 39, pp. 36–38). The Korean Institute of Information Scientists and Engineers.   
<http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE02058113>





## Journal Articles

- 1 **Moon, J.**, Park, H., & Lee, K. (2019). Integrated visual security management for optimal condition explorations in resource-constrained systems. *EURASIP J. Image and Video Processing*, 2019, 12. doi:10.1186/s13640-018-0389-0
- 2 Lee, J., **Moon, J.**, Kim, S., Park, H., & Lee, K. (2013). An experimental analysis of performance, energy consumption and video quality for secure mobile video communication. *Journal of KIISE : Computer Systems and Theory*, 40, 122–130.   
<http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE02194311>

## Awards

- 2019  **NAVER Ph.D Fellowship Award** from NAVER Corporation.
-  **Superior Abstract Award** from 2019 Annual Meeting of Korean Urological Association.
- 2017 (1), (2)  **Research grant for excellent achievement** from Department of Computer Science, Yonsei University.
- 2014  **Superior Paper Award** for #15 in Conference Proceedings.
- 2012  **Best Paper Award** for #16 in Conference Proceedings.

## Human Subject Research

- 1  **50 human subjects** “Analysis of changes in facial expressions, voices, and physiological signals under specified stressful situations.” approved by Institutional Review Board of Yonsei University (7001988-201909-HR-701-02).
- 2  **30 dysuria patients** “Measurement of Impedance and Pulse in Bladder during Urodynamic Examination Test – A Prospective Exploratory Study.” approved by Institutional Review Board of Severance Hospital (4-2018-0500).
- 3  **30 nocturnal enuresis patients** “Analysis of Multiple Biological Signal Changes at Enuresis moment in Enuresis Patients (5 12 years old): A Prospective Observation Study.” approved by Institutional Review Board of Severance Hospital (4-2017-1214).
- 4  **100 human subjects** “Analysis of various changes in facial expressions, voices, and physiological signals under stressful episodes.” approved by Institutional Review Board of Yonsei University (7001988-201712-HR-101-02).

## Human Subject Research (continued)

- 5    ■ **100 human subjects** “Monitoring and analysis of various changes in physiological signals according to mental stress.” approved by Institutional Review Board of Yonsei University (7001988-201706-HR-201-03).

## Academic/Scientific Experience

- 2016    ■ **Academic assistant** of registration co-chair in The 43rd ACM/IEEE International Symposium on Computer Architecture (ISCA) 2016.
- 2013    ■ **Teaching assistant** of Computer System (CSI2107-02) in Yonsei University.  
         ■ **Teaching assistant** of Logic Circuit Design (CSI2111-02) in Yonsei University.
- 2012    ■ **Teaching assistant** of Computer System (CSI2107-02) in Yonsei University.  
         ■ **Teaching assistant** of Logic Circuit Design (CSI2111-02) in Yonsei University.
- 2012    ■ **Visiting student** in Professor Nikil Dutt’s research laboratory in the University of California, Irvine for 2 months.

## Skills

- Languages    ■ Korean (Native), English (Intermediate)
- Programming    ■ Python, ~~W~~TeX, C#, C, Cplusplus, Perl Script, Java, PHP, SQL, XML/XSL
- Database    ■ MySQL.
- Web Dev    ■ HTML, CSS, JavaScript, Apache Web Server, Tomcat Web Server

## Miscellaneous Experience

- 2015 – 2018    ■ **Military service : specialized research agent** in Graduate School of Yonsei University.
- 2011 – . . . . .    ■ **Musical life** as a trainee in the academy for about 2 years, a vocalist in three times of band performance and two times of wedding celebration, and a trainee for playing the guitar currently.
- 1995 – . . . . .    ■ **Healthy life** with Taekwondo (3rd certificate), skiing, soccer (club activity in high school), baseball, fitness, crossfit, snorkeling, and swimming.
- 1988 – . . . . .    ■ **Global life** while visiting 15 foreign countries so far and dreaming to travel around the world.