CURRICULUM VITAE

JOO YOUNG KIM

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PERSONAL INFORMATION:

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PhD candidate and Technical Research Personnel in the Biomedical Engineering Department at Hanyang University, South Korea.

I work with Professor *In Young Kim* in the *Smart Ubiquitous Healthcare Lab*.

I completed my B.S. in Biomedical Engineering at Hanyang University and can handle most bio-signals and medical images. In particular, I can design the whole systems for electrical bio-signals, including hardware design, firmware coding and analysis.

Through the analysis of bio-signals and medical images, I have become interested in computer science and have a need for related research. So, we created an A.I. team in the lab and I am currently working on this team, doing CNN and RNN based research.

EDUCATION AND PROFESSIONAL APPOINTMENTS

EDUCATION:

2016-*Present*	Ph.D. candidate, Biomedical Engineering, Hanyang University, Seoul, Korea Supervisor: *In Young Kim* (M.D., Ph.D.)
2012-2016	B.Sc. Biomedical Engineering, Hanyang University, Seoul, Korea

HONORS, AWARDS:

2017	Best Paper Award	The Korean Society of Medical & Biological Engineering
2015	Dean's Award	Graduation Project, Department of Biomedical Engineering, Hanyang University
2015	The Encouragement Award	7th Capstone Design Fair Final, Hanyang University

RESEARCH

RESEARCH EXPERIENCE:

2016-*Present*	Graduate Research Assistant, A.I. team, Smart Ubiquitous Healthcare Lab., Biomedical Engineering, Hanyang University, Seoul, Korea
2015-2016	Undergraduate Research Intern, Hearing team, Smart Ubiquitous Healthcare Lab., Biomedical Engineering, Hanyang University, Seoul, Korea
2017-*Present*	Research Assistant, Smart Healthcare & Device Research Center, Samsung Medical Center, Seoul, Korea

MAJOR AREAS OF RESEARCH INTEREST

Machine learning and deep learning in medical data

Biomedical engineering, Computer science, Electrical engineering

PUBLICATIONS:

REFEREED JOURNAL ARTICLES (SCI | SCI-E): * lead author; ^ co-author

1. Nam, B.*, **Kim, J. Y.^**, Kim, I. Y., Cho, B.H., (2022).
   Selective Prediction LSTM for Time Series Health Datasets using Unit-wise Batch Standardization: Algorithm Development and Validation.
   JMIR Medical Informatics, 10(3):e30587

2. Ro, K.*, **Kim, J. Y.***, Park, H., Cho, B.H., Kim, I. Y., Shim, S.B., Choi, I.Y., Yoo, J.C. (2021).
   Deep-learning framework and computer assisted fatty infiltration analysis for the supraspinatus muscle in MRI.
   Scientific Reports, 11(1), 1-12.

3. You, S.*, Cho, B. H., Yook, S. **Kim, J. Y.^**, Shon, Y. -M, Seo, D. -W., Kim, I. Y. (2020).
   Unsupervised automatic seizure detection for focal-onset seizures recorded with behind-the-ear EEG using an anomaly-detecting generative adversarial network.
   Computer Methods and Programs in Biomedicine, 193, 105472

4. **Kim, J. Y.***, Ro, K.*, You, S., Nam, B. R., Yook, S., Park, H. S., ... & Kim, I. Y. (2019).
   Development of an automatic muscle atrophy measuring algorithm to calculate the ratio of supraspinatus in supraspinous fossa using deep learning.
   Computer Methods and Programs in Biomedicine, 182, 105063.

5. **Kim, J. Y.***, Nam, K. W., Lee, J. C., Hwang, J. H., Jang, D. P., & Kim, I. Y. (2018).
   Scalp tapping-based protocol for adjusting the parameters of binaural hearing aids.
   Biomedical Signal Processing and Control, 45, 91-97.

6. Kim, D. Y.*, Kwon, J., **Kim, J. Y.^**, Cha, H. S., Kim, Y. W., Kim, I. Y., & Im, C. H. (2018).
   New Method for Pure-Tone Audiometry Using Electrooculogram: A Proof-of-Concept Study.
   Sensors, 18(11), 3651.

REFEREED JOURNAL ARTICLES (DOMESTIC): * lead author; ^ co-author

1. **Kim, J. Y.***, Nam, B.R., Kim, M.S., Choi, J.K., Cho, B.H. & Kim, I. Y. (2021).
   Technical Note: Speaker Identification Algorithm Based on the Deep Learning for Phonetics Forensic Purposes using a Cochlear Simulation Spectrum.
   Journal of Science Criminal Investigation, 15(4): 307-311

2. Nam, B.R., **Kim, J. Y.^**, Kim, M.S., Choi, J.K., Cho, B.H. & Kim, I. Y. (2021).
   Technical Note: Development of Non-contact Deception Detection using Facial Expression and Analysis of Significant Time Period.
   Journal of Science Criminal Investigation, 15(3), 238-243.

3. So, S., You, S. M., **Kim, J. Y.^**, An, H. J., Cho, B. H., Yook, S., & Kim, I. Y. (2018).
   Development of Age Classification Deep Learning Algorithm Using Korean Speech.
   Journal of Biomedical Engineering Research, 39(2), 63-68.

4. **Kim, J.***, Lee, S., Kim, K., Cho, K., You, S., So, S., ... & Kim, I. Y. (2017). Development of Bone Metastasis Detection Algorithm on Abdominal Computed Tomography Image using Pixel Wise Fully Convolutional Network. ***Journal of Biomedical Engineering Research***, 38(6), 321-329.

PATENTS:

1. NAM, Bo Rum, KIM, In Young, YOOK, Soon Hyun, **KIM, Joo Young**, YOU, Sung Min, KIM, Yeong Myeong, KIM, Ji Yoon
   "Involuntary Emotional Expression Extraction and Quantification Using Facial Landmarks"
   KR-Application No. 10-2019-0147279
   Patent No. 10-2338684

2. KIM, In Young, YOOK, Soon Hyun, **KIM, Joo Young**, YOU, Sung Min, KIM, Yeong Myeong, NAM, Bo Rum, KIM, Ji Yoon
   "DECEPTION DETECTION METHOD USING BIOMETRIC INFORMATION"
   KR-Application No. 10-2020-0153434

3. KIM, In Young, YOOK, Soon Hyun, YOU, Sung Min, **KIM, Joo Young**, KIM, Yeong Myeong, KIM, Ji Yoon, NAM, Bo Rum
   "DECEPTION DETECTION METHOD AND APPARATUS USING THERMAL VIDEO"
   KR-Application No. 10-2019-0140579

4. KIM, In Young, YOOK, Soon Hyun, **KIM, Joo Young**, YOU, Sung Min, KIM, Yeong Myeong, NAM, Bo Rum, KIM, Ji Yoon
   "DECEPTION DETECTION METHOD USING BIOMETRIC INFORMATION"
   KR-Application No. 10-2019-0091422

PROJECTS:

- Objective measurement and assessment of rehabilitation for the stroke patient based on the Inertial Measurement Unit and Electromyography Signal
  Ministry of Science, ICT and Future Planning, Korea
  (Apr. 2015 ~ Aug. 2015)

- Development of Deep Brain Stimulation Therapeutic Technique for Depression based on micro PET and Fast Scan Cyclic Voltammetry
  Ministry of Science, ICT and Future Planning, Korea
  (Mar. 2015 ~ Oct. 2015)

- Development of a system to predict cardiac arrest using complex biosignals
  Korea Health Industry Development Institute, KHIDI, Korea
  (Oct. 2015 ~ Apr. 2016, Mar. 2018 ~ Dec. 2018)

- Development of band-typed wearable monitoring device and extraction of biological markers
  Ministry of Science and ICT, Korea
  (Apr. 2016 ~ Sep. 2016, Apr. 2017 ~ Sep. 2017)

- Development of personal authentication system based on multi-modal biometrics
  Ministry of Education, Korea
  (Aug. 2016 ~ Oct. 2016)

- Development of videofluoroscopic swallowing image-based automatic diagnosis and classification techniques for dysphagia patients
  Ministry of Education, Korea
  (Nov. 2016 ~ Oct. 2017)

- Low-intensity Focused Ultrasound Based Tactile & Texture Generating Technology
  Samsung Electronics Co., Ltd., Korea
  (Jul. 2017 ~ Mar. 2018)

- 전투원 생존성 지표 도출을 위한 다생체신호 계측 및 복합 분석
  (Multi-biological signal measurement and complex analysis for deriving combatant survivability indicators)
  Agency for Defense Development, ADD, Korea
  (Oct. 2016 ~ Dec. 2016, Nov. 2017 ~ Dec. 2017)

- Development of Multimodal Brain-Machine Interface SystemBased on User Intent Recognition
  Ministry of Science, ICT and Future Planning, Korea
  (Mar. 2017 ~ Feb. 2018)

- 뇌파 기반 상태 판단 로직 개발 (Development of EEG-based state classification logic)
  HYUNDAI MOBIS CO. LTD., Korea
  (Aug. 2017 ~ Oct. 2017)

- Construction of multi-modal biometrics and Korean voice database for development of forensic science technique
  Ministry of Science and ICT, Korea
  (Jun. 2017 ~ Jun. 2022)

- Structuring of Korean medicine classic database for development of korean-western medical diagnostic artificial intelligence assistant
  Korea Health Industry Development Institute, Korea
  (Mar. 2018 ~ Dec. 2018)

- Development of biosensing fuction antibiosis wounddressing and instrument for the treatment
  Korea Evaluation Institute of Industrial Technology, Korea
  (Mar. 2019 ~ Dec. 2020)

- 멀미 정량화 분석 산학연구(Motion sickness quantification analysis industry-university project)
  HYUNDAI NGV, Korea
  (Jul. 2019 ~ Nov. 2019)

- VR 어플리케이션을 위한 안면부 근전도 기반 표정 인식
  (Facial EMG-based Facial Expression Recognition for Interactive VR Applications)
  Samsung Electronics Co., Ltd., Korea
  (Sep. 2019 ~ Aug. 2020)

- 운전자 스트레스 상태판단 산학연구 (Determination of driver stress industry-university project)
  Hyundai Mobis, Korea
  (Dec. 2019 ~ Jun. 2020)

- ISO 21062-2:2018 프로토콜에 따른 바이오넷 혈압계 모듈 BN1 의 임상 평가 (Clinical evaluation of Bionet sphygmomanometer module BN1 according to ISO 21062-2:2018 protocol)

주식회사 바이오넷 , Korea
(May. 2020 ~ Nov. 2020)

- Development of real-time hemodynamic monitoring technology and prognostic indicators to improve cerebral perfusion during CPR
  National Research Foundation of Korea, Korea
  (Jun. 2020 ~ Feb. 2022)

- Development of AI Technology for Sleep Health Management based on Temporal Rhythm Analysis of Daily-life Brain-bio Signal
  Ministry of Science, ICT, Korea
  (Apr. 2021 ~ Dec. 2021)