# Keum San Chun

## Personal Data

Keum San Chun
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## Education

University of Texas-Austin, Austin, TX
Cockrell School of Engineering
M.S./Ph.D. Electrical Engineering
Supervisor: Edison Thomaz, Ph. D.
2015 – Present

University of Wisconsin-Madison, Madison, WI
College of Engineering
B.S. Biomedical Engineering
Supervisor: John G. Webster, Ph. D.
2009 – 2015

## Professional Interests

Wearable/Mobile Computing
Mobile Healthcare: Continuous monitoring of health for early detection of underlying diseases
Human Activity Recognition: Inferring pathophysiological state from human activities
Medical Devices, Sensors and Instrumentation
Physiological Measurements
Machine Learning

## Experience

**2018 Summer** — **Neurotechnology Intern, Battelle Memorial Institute (Columbus, OH)**
NeuroLife™
Supervisor: Patrick Ganzer, Ph. D.
Developing a non-invasive closed-loop bioelectronic medical system for treating hypertensive crisis

**2017 ~** — **Graduate Research Assistant, University of Texas at Austin (Austin, TX)**
Human Signals Lab
Supervisor: Edison Thomaz, Ph. D.
Utilizing sensors in commodity devices for activity recognition and health monitoring

**2016 ~ 17** — **Graduate Research Assistant, University of Texas at Austin (Austin, TX)**
Lewpea Lab (Cognitive Neuroscience Lab)
Supervisor: Jarrod A. Lewis-Peacock, Ph. D.
Realtime functional magnetic resonance image processing pipeline for studying prospective memory

**2014 ~ 15** — **Undergraduate Research Assistant, University of Wisconsin at Madison (Madison, WI)**
Bioinstrumentation Lab
Supervisor: John G. Webster, Ph. D.
Asthma shirt: a continuous monitoring system for asthma attack

## Journal Publications

**March 2018** — **Detecting Eating Episodes by Tracking Jawbone Movements with a Non-Contact Wearable Sensor**
Keum San Chun, Sarnab Bhattacharya, Edison Thomaz
Proceedings of the ACM: Interactive Mobile, Wearable and Ubiquitous Technologies (IMWUT)
Volume 2, Issue 1

**January 2017** — **Reducing thumb extensor risk in laboratory rat gavage**
Amit J. Nimunkar, Keum San Chun, Ngoc Phung, Kevin Wreksoatmodjo, Thomas Y. Yen, Robert G. Radwin
Applied Ergonomics 58 (2017): 151-155.

# Teaching Experience

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| Spring 2014 | **Undergraduate Tutoring, (General Physics, Signal Processing)**<br>Greater University Tutoring Service (GUTS)<br>University of Wisconsin at Madison |
| Spring 2011 | **Undergraduate Tutoring, (Organic Chemistry)**<br>Greater University Tutoring Service (GUTS)<br>University of Wisconsin at Madison |
| Fall 2010 | **Undergraduate Tutoring, (General Physics)**<br>Greater University Tutoring Service (GUTS)<br>University of Wisconsin at Madison |

# Certification

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| August 2016 | **National Instruments Certified LabVIEW Associate Developer (CLAD)** |

# Other Experience

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| 2011~2013 | **Republic of Korea Army, Ministry of Defense (Seoul, Korea)**<br>Information & Security |

# Projects

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| 2018 Summer | **Non-invasive Closed-loop Bioelectronic Medical System for Treating Hypertensive Crisis**<br>Developing a non-invasive closed-loop bioelectronic medical system for treating hypertensive crisis |
| 2018 Summer | **Android App for Bio-Tattoo Sensor**<br>Developing an Android app with real time respiratory rate calculation algorithm |
| 2018 Spring | **Drinking Detection Using a Commercial Activity Tracker**<br>Developed a drinking detection algorithm (90.3 % precision and 91.0% recall) |
| 2017 Fall | **Eating Detection using an IR proximity sensor**<br>Developed a wearable necklace for automated dietary monitoring (95.2% precision and 81.9% recall) |
| 2017 Spring | **Portable Visual Evoked Potential (VEP) Measurement Device**<br>A portable Point-Of-Care device for VEP |
| 2016 Fall | **Real-time Functional MR Image Processing Program for Neurofeedback System**<br>Realtime functional magnetic resonance image processing pipeline for prospective memory study |
| 2015 Spring | **Automated Rat Gavage System**<br>Designed an automated gavage system that links RFID animal database with infusion pump |
| 2015 Spring | **Asthma Shirt – Non-invasive Asthma Monitoring System**<br>A continuous monitoring system for detecting asthma attack |
| 2014 Spring | **EMG Assisted Control System**<br>Linked contraction of biceps for controlling windows master volume for patients without fine motor control |

# Skills

**Programs** : Code Composer Studio (CCS), AutoCad, Eagle, MATLAB, Android Studio, SolidWorks, LabVIEW
**Programming Languages** : C, Java, Python
**Operating Systems** : MacOS, Ubuntu, Windows