

# KUN WOO CHO



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## Education

PRINCETON UNIVERSITY  
Ph.D. in Computer Engineering  
2018 - present

UNIVERSITY AT BUFFALO  
B.S. in Computer Engineering  
GPA 3.891  
2014 - 2018

## Honors and Awards

Dean's List  
2014 - 2018

University Honors Program  
2014 - 2018

International Merit Scholarship  
2014 - 2018

Barbara & Jack Davis Dean's  
Scholarship  
2014 - 2018

SEAS Dean's Undergraduate  
Achievement Award  
May 2018

UB CSE Departmental Award of  
Research  
May 2018

Grace Hopper Celebration of Women in  
Computing (GHC) Scholarship  
October 2017

Honors College Scholarship  
June 2017

UB Undergraduate Research and  
Scholarship Award of Distinction  
April 2017

CURCA Undergraduate Research  
Award  
February, September 2016

CURCA Ambassador  
August 2016

SUNY STEM Research Passport Award  
August 2015

## Summary

I am a Ph.D. student in Computer Engineering in the Department of Computer Science at the Princeton University, under the direction of Prof. Kyle Jamieson at the Princeton Advanced Wireless Systems Lab. Previously, I have researched at the Embedded Sensing and Computing Lab at the University at Buffalo, under the direction of Prof. Wenyao Xu and the Networks and Operating Systems Lab at the University of Cambridge, under the supervision of Prof. Cecilia Mascolo. My research foci are in the fields of wireless systems and mobile sensing.

## Peer Reviewed Publications

- [C4] Feng Lin, **Kun Woo Cho**, Chen Song, Wenyao Xu, Zhanpeng Jin, "**Brain Password: A Secure and Truly Cancelable Brain Biometrics for Smart Headwear**", *The 16<sup>th</sup> ACM International Conference on Mobile Systems, Applications, and Systems (MobiSys'18)*, Munich, Germany, June 2018
- [C3] Tri Vu, Hoan Tran, **Kun Woo Cho**, Chen Song, Feng Lin, Michelle Hartley-McAndrew, Kathy Doody, Chang Wen Chen, Wenyao Xu, "**Efficient and Effective Visual Stimuli Design for Quantitative Autism Screening: An Exploratory Study**", *IEEE International Conference on Biomedical and Health Informatics (BHI'17)*, Orlando, Florida, February 2017
- [C2] **Kun Woo Cho**, Feng Lin, Chen Song, Xiaowei Xu, Michelle Hartley-McAndrew, Kathy Doody, Wenyao Xu, "**Gaze-Wasserstein: A Quantitative Screening Approach to Autism Spectrum Disorders**", *IEEE Conference on Wireless Health (WH'16)*, Bethesda, MD, October 2016
- [C1] **Kun Woo Cho**, Feng Lin, Chen Song, Xiaowei Xu, Fuxing Gu, Wenyao Xu, "**Thermal Handprint Analysis for Forensic Identification using Heat-Earth Mover's Distance**", *IEEE International Conference on Identity, Security, and Behavioral Analysis (ISBA'16)*, Sendai, Japan, February 2016

## Media Coverages

- [M4] "**Student develops smartphone app for early autism detection.**" *UPI*, November 19, 2016
- [M3] "**Smartphone app for early autism detection being developed by UB undergrad.**" *UB News*, November 11, 2016
- [M2] "**This smartphone app screened for autism with 94 percent accuracy.**" *New York Daily News*, November 15, 2016
- [M1] "**This eye-tracking app could speed-up autism detection.**" *Wired UK*, November 14, 2017

## Presentations

- [P3] **Undergraduate Cambridge Scholars Symposium**, University of Cambridge, Cambridge, UK, August 2017
- [P2] **IEEE Conference on Wireless Health**, National Institutes of Health (NIH), Bethesda, MD, October 2016
- [P1] **IEEE International Conference on Identity, Security and Behavior Analysis**, Tohoku University, Sendai, Japan, February 2016

## Technical Skills

Programming Language  
(Java, JavaScript, C, C++, Python)

Assembly Language  
(ARM, MIPS)

Android Development  
(Android Studio, NDK)

Web Development  
(HTML, CSS, PHP)

Research  
(MATLAB, EEGLAB, LaTeX, BibTeX)

Microsoft Office  
(Word, Excel, PowerPoint)

Others  
(Git, MySQL, Verilog, Multisim)

## Non-Technical Skills

Written and Spoken Korean

Classic and Jazz Violin

Golf

## References

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University at Buffalo  
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## Research Experiences

University at Buffalo, ESC Laboratory, Buffalo, NY | Sept. 2015 – May 2018  
RESEARCH INTERN

- [R7] **Validation of Sensor-Equipped Insoles for Environment-Free Gait Analysis**
- Validation of the Smart Insoles that analyze the walking gait using the Vicon motion capture system as a ground truth.
  - Development of the turning detection system for the Smart Insole that enables the home exercise program after the stroke.

- [R6] **Early Screening Approach to Autism Spectrum Disorder Using Discrete Gaze Pattern**
- Development of a wireless gaze-based ASD screening system, named Gaze-Wasserstein, that consists a gaze-tracking system and novel dissimilarity measure.
  - Algorithmic modification of Wasserstein metric for ASD screening applications.
  - Stimuli design to elicit atypical gaze behaviors of children with ASD using social scenes.

- [R5] **Electroencephalogram (EEG)-based Personal Identification Using Mallows Distance**
- Development of an automatic EEG-based identification system by modeling EEG activity as a distribution and utilizing stochastic metrics for dissimilarity measure.
  - Performance comparison of feature extraction algorithms, such as dynamic time warping (DWT) and fast Fourier transform (FFT).

- [R4] **Early Childhood Education through Cyber-learning**
- Development of the recognition system for touch motions in children's EBooks.

University of Cambridge, NetOS Laboratory, UK | June 2017 – August 2017  
RESEARCH INTERN

- [R3] **Mobile Phones based Adaptive Platform to Track User Emotion**
- Android app development to track the emotional states of the user via voice analysis.
  - Employment of an adaptive duty cycle and energy optimization techniques, such as a selective signal recognition and local similarity detection.

NSF REU Program, Buffalo, NY | May 2016 – August 2016  
RESEARCH INTERN

- [R2] **User Authentication for Smart Headwear through Cancelable Brain Biometrics**
- Study of a new psychophysiological protocol for secure user authentication of smart headwear via a cancelable event-related potential (ERP).
  - Investigation of the method to generate unique and cancelable ERP bio-signal.
  - Visual stimuli design for head-mounted device (HMD) applications.

SUNY STEM Research Program, Buffalo, NY | July 2015 – August 2015  
RESEARCH INTERN

- [R1] **Thermal Handprint-based Personal Identification Using Heat-Earth Mover's Distance**
- Development of a forensic identification system that incorporates thermal handprints and novel distance metrics, Heat-Earth Mover's Distance (HEMD), that is designed specifically for thermal handprint recognition.
  - Investigation of effects of surface emissivity on the duration of thermal handprints.

## Teaching Experiences

- [T3] CSE379 Introduction to Microprocessor (Spring 2018)  
[T2] CSE113 Introduction to Computer Programming (Fall 2016, Spring 2017)  
[T2] CSE101 Computer a General Introduction (Fall 2016)