

# Kenneth Howard Koltermann

## Research Focus

Advancing detection and treatment methods for gait related diseases in humans using wearable sensors and machine learning.

## EDUCATION

*Doctor of Philosophy*, Computer Science  
College of William & Mary; Williamsburg, VA  
GPA 3.88

Expected May 2024

*Master of Science*, Computer Science  
College of William & Mary; Williamsburg, VA  
Masters Project - STBPU: A Reasonably Secure Branch Predictor Unit  
GPA 3.88

May 2020

*Bachelor of Science*, Computer Science  
California State University, East Bay; Hayward, CA

December 2017

## PROFESSIONAL EXPERIENCE

*Graduate Research Assistant*  
College of William & Mary, Williamsburg, VA

August 2018 – Present

- Conducted research into applications of wearable technology for detection of Parkinson's disease symptoms, 2020-present).
- Conducted research into CPU branch predictor Spectre attack mitigations (2018-2020).
- Supervised CS141 lab classes.

*Software Developer Consultant*

Incal Technology

January - August 2018

- Designed and developed the front end for Incal's "Sonoma" chip testing suite.
- Co-developed the backend network communication routines for "Sonoma".

Volt Test Systems (Acquired by Incal Technology)

January 2016 - January 2018

- Developed the front end for Volt's high-power burn-in chip testing suite.
- Improved upon Volt's industrial data analysis tools.

## Technical Skills

Experienced in C/C++, Python and Python data-science libraries (pandas, numpy, scipy), Tensorflow/Keras, Java

## PUBLICATIONS

- **IEEE DNS 2022** *STBPU: A Reasonably Safe Branch Predictor Unit*, Tao Zhang, Timothy Lesch, **Kenneth Koltermann**, Dmitry Evtvushkin; IEEE/IFIP International Conference on Dependable Systems and Networks (DNS), 2022

- **IMWUT 2021** *LAX-Score: Quantifying Team Performance in Lacrosse and Exploring IMU Features towards Performance Enhancement*, Woosub Jung, Amanda Watson, Scott Kuehn, Erik Korem, **Ken Koltermann**, Minglong Sun, Shuangquan Wang, Zhenming Liu, Gang Zhou; IProceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (ACM IMWUT), 2021
- **IEEE CHASE 2021** *TremorSense: Tremor Detection for Parkinson's Disease Using Convolutional Neural Network*, Minglong Sun, Amanda Watson, Gina Blackwell, Woosub Jung, Shuangquan Wang, **Kenneth Koltermann**, Noah Helm, Gang Zhou, Leslie Cloud, Ingrid Pretzer-Aboff; ACM/IEEE Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE), 2021
- **IPSN 2021** *Joint Motion Analysis Using an Electromagnet-Based Sensing Method*, Amanda Watson, Andrew Lyubovsky, **Kenneth Koltermann**, Gang Zhou; ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), 2021
- **ASPLOS 2020** *Exploring Branch Predictors for Constructing Transient Execution Trojans*, Tao Zhang, **Kenneth Koltermann**, Dmitry Evtvyushkin; International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), March 2020