

Rawan M. Alharbi

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Research Interest

The main goal of my research is to enable a sustainable future for wearable systems. I work in the intersection of human-computer interaction (HCI), systems, and machine learning (ML), exploring how we can design wearable systems that are practical, long-lived, accurate, and helpful without sacrificing important social values.

Education

Northwestern University

Ph.D. in Computer Science, GPA: 3.8/4.0

Advisor: Nabil Alshurafa

Evanston, IL

2016-Present

Northwestern University

M.S. in Computer Science, GPA: 3.8/4.0

Advisor: Micheal Horn

Evanston, IL

2014-2016

Prince Sultan University

B.S. in Computer Science, GPA: 3.86/4.0

Riyadh, Saudi Arabia

2006-2011

Publications

R. Alharbi, C. Feng, S. Sen, J. Jain, J. Hester, and N. Alshurafa, "Heatsight: Wearable low-power omni thermal sensing," in *2021 International Symposium on Wearable Computers*, pp. 108–112, 2021.

R. Alharbi, B. Spring, and N. Alshurafa, "Measuring smoking topography in natural settings using non-contact passive wearable sensors," in *Annals Of Behavioral Medicine*, vol. 54, pp. S580–S580, Oxford Univ Press INC Journals Dept, 2001 Evans Rd, Cary, NC 27513 USA, 2020.

R. Alharbi, A. Ng, **R. Alharbi**, and J. Hester, "'i am not an engineer': Understanding how clinicians design & alter assistive technology," in *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*, pp. 1–8, 2020.

R. Alharbi, M. Tolba, L. PetitO, J. Hester, and N. Alshurafa, "To mask or not to mask?: Balancing privacy with visual confirmation utility in activity-oriented wearable cameras," *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.*, vol. 2, Sept. 2019.

N. Alshurafa, J. Jain, **R. Alharbi**, G. Iakovlev, B. Spring, and A. Pfammatter, "Is more always better?: Discovering incentivized mhealth intervention engagement related to health behavior trends," *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.*, vol. 2, pp. 153:1–153:26, Dec. 2018.

R. Alharbi, T. Stump, N. Vafaie, A. Pfammatter, B. Spring, and N. Alshurafa, "I can't be myself: Effects of wearable cameras on the capture of authentic behavior in the wild," in *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, vol. 2, (New York, NY, USA), ACM, 2018.

N. Alshurafa, **R. Alharbi**, A. F. Pfammatter, and B. Spring, "Detecting real time episodic overeating for just in time interventions," in *Annals Of Behavioral Medicine*, vol. 52, pp. S726–S726, Oxford Univ Press INC Journals Dept, 2001 Evans Rd, Cary, NC 27513 USA, 2018.

A. F. Pfammatter, **R. Alharbi**, N. Alshurafa, and B. Spring, "From sensing to theory: Implications of capturing naturally occurring behaviors in the wild," in *Annals Of Behavioral Medicine*, vol. 52, pp. S153–S153, Oxford Univ Press INC Journals Dept, 2001 Evans Rd, Cary, NC 27513 USA, 2018.

R. Alharbi, N. Alshurafa, and M. Horn, "Intuito: Opportunistic tangible programming by demonstration for physical components," in *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, CHI EA '17, (New York, NY, USA), pp. 2322–2328, ACM, 2017.

R. Alharbi, A. Pfammatter, B. Spring, and N. Alshurafa, "Willsense: Adherence barriers for passive sensing systems that track eating behavior," in *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, CHI EA '17, (New York, NY, USA), pp. 2329–2336, ACM, 2017.

N. Alshurafa and **R. Alharbi**, "From lab to field: Eating detection machine learning models, privacy, stigma and user-comfort of wearables," in *Annals Of Behavioral Medicine*, vol. 51, pp. S2375–S2376, SPRINGER 233 SPRING ST, NEW YORK, NY 10013 USA, 2017.

S. Zhang, **R. Alharbi**, M. Nicholson, and N. Alshurafa, "When generalized eating detection machine learning models fail in the field," in *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 '17, (New York, NY, USA), pp. 613–622, ACM, 2017.

S. Zhang, **R. Alharbi**, W. Stogin, M. Pourhomayun, B. Spring, and N. Alshurafa, "Food watch: Detecting and characterizing eating episodes through feeding gestures," in *Proceedings of the 11th EAI International Conference on Body Area Networks*, BodyNets '16, (ICST, Brussels, Belgium, Belgium), pp. 91–96, ICST (Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering), 2016.

Teaching Experience

Wireless and Mobile Health (mHealth)

Co-Instructor

Evanston, IL

Winter 2021 and 2020

- o Redesigned the mhealth course readings and assignments to cover important topics in mhealth that spans the area of wearable systems, human computer interaction and machine learning.
- o Mentored students working on a quarter long mhealth project.

Computing Everywhere: Building Android App Workshop

Instructor

Evanston, IL

January 2019

- o Designed a two hour workshop to teach non-computer science students how to build and deploy their own Android mobile apps
- o Used block based approach method to teach students about the concepts of variables, loops, conditional statement, logical and mathematical operations.
- o Used a hands on guided approach to teaching the material.

iDTech Programming Academy

Instructor

Lake forest, IL

July 2013–August 2013

- o Taught C++ , Java , Python and JavaScript to beginner programmers
- o Helped students in designing and building their games.
- o Observed what barriers and facilitators that face teenagers upon learning how code in order to understand the best way to design IntuiteCoder (Master's thesis).

Industry Experience

Ericsson

Service Engineer

Riyadh, Saudi Arabia

February 2011 – June 2012

Configured, integrated and troubleshooted new and existing solutions on the Service Delivery Platform using UNIX, Shell, Java, and Network skills.

Conference Presentations

Oral

HeatSight: Wearable Low-power Omni Thermal Sensing

UbiComp '21

<i>To Mask or Not to Mask?: Balancing Privacy with Visual Confirmation Utility</i>	UbiComp '19
<i>I Can't Be Myself: Effects of Wearable Cameras on the Capture of Authentic Behavior</i>	UbiComp '18
Poster	
<i>Measuring smoking topography in natural settings using non-contact passive wearable sensor</i>	SBM '19
<i>Detecting real time episodic overeating for just in time interventions</i>	SBM '18
<i>Will Participants Wear Passive Sensing Devices Long Enough to Study Eating Behavior?</i>	Obesity week '17
<i>Intuito: Opportunistic tangible programming by demonstration for physical components</i>	CHI '17
<i>Willsense: Adherence barriers for passive sensing systems that track eating behavior</i>	CHI'17

Awards and Achievements

<i>Rising Stars in EECS</i>	2020
<i>SIGCHI Student Travel Grant</i>	2019
<i>UbiComp Travel Award</i>	2018
<i>Best Paper Award at 2017 Obesity Weeks eHealth/mHealth Section</i>	2017
<i>Best Paper Award at IEEE BODYNET</i>	2016
<i>PerCom NSF Travel Award</i>	2016
<i>Master's funding</i>	2014-2016
<i>Top Five High School Graduate National Award</i>	2007

Services

Co-Director

<i>Northwestern Graduate Women in computing</i>	2019
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Reviewer

<i>IMWUT '20 - Interactive, Mobile, Wearable and Ubiquitous Technologies</i>	2020
<i>CHI '20 - CHI Conference on Human Factors in Computing Systems</i>	2019
<i>IMWUT '19 - Interactive, Mobile, Wearable and Ubiquitous Technologies</i>	2019
<i>BHI '19 - IEEE EMBS International Conference on Biomedical & Health Informatics</i>	2019
<i>CHI '19 - Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems</i>	2019
<i>CHI '19 - Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems</i>	2018

Conference and Workshop Volunteer

<i>NSF-funded workshop on Technology for Automated Capture of Diet Student Volunteer</i>	2020
<i>Ubicomp '18 Student Volunteer</i>	2018