

Brandon Oubre

PH.D. CANDIDATE

✉ boubre@cs.umass.edu | 🌐 www.brandonoubre.com | 🌐 brandonoubre | 🐦 @br_oubre

Education

University of Massachusetts Amherst

PH.D. COMPUTER SCIENCE

Advisor: Prof. Sunghoon Ivan Lee

Amherst, Massachusetts

In Progress

University of Massachusetts Amherst

M.S. COMPUTER SCIENCE

Advisor: Prof. Sunghoon Ivan Lee

Amherst, Massachusetts

May 2020

Louisiana State University

B.S. COMPUTER SCIENCE AND B.S. MATHEMATICS

4.0 GPA with Honors

Baton Rouge, Louisiana

May 2015

Experience

Advanced Human Health Analytics Lab (Prof. Sunghoon Ivan Lee)

PHD CANDIDATE

Amherst, Massachusetts

Sept. 2017 – Present

Biogen

INTERN: MOVEMENT RESEARCH DATA ANALYST

Cambridge, Massachusetts

June 2021 – Aug. 2021

CenturyLink

SOFTWARE DEVELOPER II

Monroe, Louisiana

June 2015 – Aug. 2017

LSU Robotics Research Lab (Prof. Supratik Mukhopadhyay)

UNDERGRADUATE RESEARCHER

Baton Rouge, Louisiana

May 2012 – May 2015

NASA Johnson Space Center (Wearable Electronics Applications Research Lab)

SOFTWARE ENGINEERING INTERN

Houston, Texas

May 2014 – July 2014

NASA Ames Research Center

SOFTWARE ENGINEERING INTERN

Mountain View, California

June 2013 – Aug. 2013

Honors and Awards

- | | | |
|------|--|---------------|
| 2019 | NSF GRFP Honorable Mention , NSF Graduate Research Fellowship Program | United States |
| 2019 | NSF Student Registration Award , BHI/BSN '19 | Conference |
| 2017 | Graduate School Fellowship , UMass Amherst College of Information and Computer Sciences | UMass |
| 2017 | James Kurose Scholar , UMass Amherst College of Information and Computer Sciences | UMass |
| 2015 | Outstanding Thesis Award , LSU Honors College | LSU |
| 2015 | University Medalist , Louisiana State University | LSU |
| 2014 | Barry M. Goldwater Scholar , Barry Goldwater Scholarship and Excellence in Education Foundation | United States |
| 2014 | Official State Commendation , Louisiana Senate Resolution SR39 | Louisiana |
| 2013 | Clayton Engineering Excellence Award , LSU College of Engineering | LSU |
| 2011 | LA-STEM Research Scholarship , LSU Office of Strategic Initiatives | LSU |

Publications

Journal Publications

- [J1] J. Lee, **B. Oubre**, J.-F. Daneault, C. D. Stephen, J. D. Schmahmann, A. S. Gupta, and S. I. Lee, "Analysis of gait sub-movements to estimate ataxia severity using ankle inertial data," *IEEE Trans. Biomed. Eng.*, Sep. 2021, **[Major Revisions]**.
- [J3] **B. Oubre** and S. I. Lee, "Towards estimating upper-limb impairment in stroke survivors using a single wrist-worn sensor," *IEEE J. Transl. Eng. Health Med*, Sep. 2021, **[In Preparation]**.
- [J2] **B. Oubre**, S. Lane, S. Holmes, K. Boyer, and S. I. Lee, "Normalization of kinetic parameters enables low-cost ambulatory monitoring of ground reaction force and center of pressure," *IEEE Trans. Biomed. Eng.*, Jul. 2021, **[Under Review]**.
- [J4] **B. Oubre**, J.-F. Daneault, K. Whritenour, N. C. Khan, C. D. Stephen, J. D. Schmahmann, S. I. Lee, and A. S. Gupta, "Decomposition of reaching movements enables detection and measurement of ataxia," *Cerebellum*, Mar. 2021. doi: 10.1007/s12311-021-01247-6.
- [J5] **B. Oubre**, J.-F. Daneault, K. Boyer, J. H. Kim, M. Jasim, P. Bonato, and S. I. Lee, "A simple low-cost wearable sensor for long-term ambulatory monitoring of knee joint kinematics," *IEEE Trans. Biomed. Eng.*, vol. 67, no. 12, pp. 3483–3490, Dec. 2020.
- [J6] **B. Oubre**, J.-F. Daneault, H.-T. Jung, K. Whritenour, J. G. V. Miranda, J. Park, T. Ryu, Y. Kim, and S. I. Lee, "Estimating upper-limb impairment level in stroke survivors using wearable inertial sensors and a minimally-burdensome motor task," *IEEE Trans. Neural Syst. Rehabil. Eng.*, vol. 28, no. 3, pp. 601–611, Mar. 2020, **[Featured Article]**.
- [J7] P. Khaloo, **B. Oubre**, J. Yang, T. Rahman, and S. I. Lee, "Nose: A novel odor sensing engine for ambient monitoring of the frying cooking method in kitchen environments," *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.*, vol. 3, no. 2, 49:1–49:25, Jun. 2019, ISSN: 2474-9567.

Conference Publications

- [C1] **B. Oubre**, J.-F. Daneault, H.-T. Jung, J. Park, T. Ryu, Y. Kim, and S. I. Lee, "Estimating quality of reaching movement using a wrist-worn inertial sensor," *42nd Annu. Int. Conf. IEEE Eng. Medicine Biol. Soc.*, Jul. 2020.

Abstracts, Talks, and Posters

- [A2] **B. Oubre**, J.-F. Daneault, K. Whritenour, N. C. Khan, C. D. Stephen, J. D. Schmahmann, S. I. Lee, and A. S. Gupta, "Decomposition of reaching movements enables detection and measurement of ataxia," *2nd Annu. Massachusetts General Hospital Ataxia Center Symp.*, May 2021, **[Invited Talk]**.
- [A3] **B. Oubre**, K. Whritenour, J.-F. Daneault, A. S. Gupta, and S. I. Lee, "Estimation of ataxia severity using wrist-worn sensors and the finger-to-nose test," *Nat. Ataxia Found. Ataxia Investigators Meeting*, Mar. 2020.
- [A4] **B. Oubre**, K. Whritenour, J.-F. Daneault, A. S. Gupta, and S. I. Lee, "Estimation of ataxia severity using wrist-worn sensors and the finger-to-nose test," *1st Annu. Massachusetts General Hospital Ataxia Center Symp.*, Mar. 2020, **[Invited Talk]**.
- [A5] J. Yang, A. Varga, K. Tung, A. Chandra, **B. Oubre**, N. Ramasarma, E. K. Choe, P. Bonato, and S. I. Lee, "A finger-worn sensor network for monitoring the real-world performance of stroke survivors," *16th IEEE Int. Conf. Wearable Implantable Body Sensor Netw.*, May 2019.

Teaching

CS 240: Reasoning Under Uncertainty

UMass Amherst

LEAD TEACHING ASSISTANT

Fall 2021

- 300 students enrolled in course. Held office hours and weekly discussion sections. Assisted instructors with course management.

CS 590W: Health Informatics and Data Science

UMass Amherst

TEACHING ASSISTANT

Spring 2021

- First offering of course. Worked with faculty from the computer science department and medical school to develop course content.
- 18 students enrolled in course. Held office hours and created a Python introduction lecture for students with medical backgrounds.

CS 240: Reasoning Under Uncertainty

UMass Amherst

TEACHING ASSISTANT

Fall 2020

- 287 students enrolled in course. Held office hours and weekly discussion sections.

Grants

2020 **C-STAR Pilot Project**, Wrote first draft and revised with principal investigator.

Shirly Ryan AbilityLab

Outreach and Volunteer Activity

Women in Engineering Day and Girls Inc. Workshops

Amherst, Massachusetts

CO-ORGANIZER, VOLUNTEER

Oct. 2017 – Oct. 2019

- Organized (July 2019–Present) and participated in biannual educational outreach workshops for high school girls.
- Lead a workshop and a presented an introductory lecture on programming (Oct. 2019).
- Guided students in an educational programming activity, where they programmed LED light strips using Arduino and ArduBlock.
- Trained other volunteers and ensured that the workshops ran smoothly.

FIRST FRC Team 4209

Baton Rouge, Louisiana

MENTOR

Jan. 2012 – May 2015

- Provided mentorship and guidance to high school students as they designed and built robots for competitions in various games.
- Participated in and led a variety of fund-raising and outreach efforts, such as teaching at a middle school summer robotics camp.
- Worked with other mentors to coordinate meetings and events, develop strategic plans, and ensure team financial stability.

FIRST FTC Tournament

Baton Rouge, Louisiana

VOLUNTEER JUDGE

Dec. 2014

- Interviewed and encouraged middle and high school teams competing in a local robotics challenge.
- Rewarded dedication, perseverance, and success by helping to decide award allocation for the competition.