Brandon **Oubre**

Ph.D. Candidate

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Education

University of Massachusetts Amherst — *Amherst, Massachusetts*
Ph.D. Computer Science — *In Progress*
Advisor: Prof. Sunghoon Ivan Lee

University of Massachusetts Amherst — *Amherst, Massachusetts*
M.S. Computer Science — *May 2020*
Advisor: Prof. Sunghoon Ivan Lee

Louisiana State University — *Baton Rouge, Louisiana*
B.S. Computer Science and B.S. Mathematics — *May 2015*
4.0 GPA with Honors

Experience

Advanced Human Health Analytics Lab (Prof. Sunghoon Ivan Lee) — *Amherst, Massachusetts*
PhD Candidate — *Sept. 2017 – Present*

Biogen Digital Health — *Cambridge, Massachusetts*
Intern: Movement Research Data Analyst — *June 2021 – Aug. 2021*

CenturyLink — *Monroe, Louisiana*
Software Developer II — *June 2015 – Aug. 2017*

LSU Robotics Research Lab (Prof. Supratik Mukhopadhyay) — *Baton Rouge, Louisiana*
Undergraduate Researcher — *May 2012 – May 2015*

NASA Johnson Space Center (Wearable Electronics Applications Research Lab) — *Houston, Texas*
Software Engineering Intern — *May 2014 – July 2014*

NASA Ames Research Center — *Mountain View, California*
Software Engineering Intern — *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

Long Publications

[L1] 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, [Minor Revisions].

[L2] Y. Liu, **B. Oubre**, C. Duval, S. I. Lee, and J.-F. Daneault, "A kinematic data-driven approach to differentiate involuntary choreic movements in individuals with neurological conditions," *IEEE Trans. Biomed. Eng.*, Sep. 2021, [Submitted].

[L3] **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].

[L4] **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, [Minor Revisions].

[L5] **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.

[L6] **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.

[L7] **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]**.

[L8] 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.

Short Publications

[S1] **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

[A1] **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].

[A2] **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.

[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," *1st Annu. Massachusetts General Hospital Ataxia Center Symp.*, Mar. 2020, [Invited Talk].

[A4] 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.

Grants

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

Teaching

CS 240: Reasoning Under Uncertainty

UMass Amherst

Lead Teaching Assistant — *Fall 2021*

Teaching Assistant — *Fall 2020*

- Large (about 300 students), lower-division undergraduate course covering the fundamentals of counting, probability, and probabilistic reasoning.
- Held office hours, taught weekly discussion sections, and answered student questions
- As lead TA, managed many aspects of course administration and ensured consistent student experience across discussion sections.

CS 590W: Health Informatics and Data Science

UMass Amherst

Teaching Assistant — *Spring 2021*

- Small (about 20 students), masters-level course tailored for students with both clinical and computational backgrounds.
- First offering of course. Worked with faculty from both the computer science department and medical school to develop course content.

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.