

AARTI SATHYANARAYANA | CV

My research focuses on developing new signal processing and machine learning techniques that leverage personal wearables and clinical devices to measure human health in both clinical and everyday settings. I have developed complexity analysis approaches to clinical neurology and cognitive science, as well as human activity recognition and deep learning algorithms to interpret actigraphy. The interdisciplinary nature of this work has led me to collaborate with the leading experts in clinical care, as well as the world's top technology companies. My vision for the future of healthcare will harmonize these two communities to empower patients and clinicians, alike.

POSTDOCTORAL RESEARCH FELLOW
Computational Health Informatics
Program (CHIP)
Boston Children's Hospital
Harvard Medical School

WEBSITE

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EMAIL

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EDUCATION

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| Ph.D.
2012-2017 | Computer Science, University of Minnesota
Advisors: Jaideep Srivastava, Vipin Kumar
Thesis: Computational Sleep Science: A Machine Learning Approach |
| M.S.
2012-2015 | Computer Science, University of Minnesota
Advisors: Jaideep Srivastava
Area: Data Mining and Machine Learning |
| B.S.
2006-2010 | Mathematics, University of Minnesota |

ACADEMIC EXPERIENCE

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| 2018-2020 | Harvard Medical School, Boston, MA
Postdoctoral Research Fellow, Advisor: Kenneth Mandl
Department of Pediatrics |
| 2018-2020 | Boston Children's Hospital, Boston, MA
Postdoctoral Research Fellow, Advisor: Kenneth Mandl
Computational Health Informatics Program |
| 2016-2016 | Qatar Computing Research Institute, Doha, Qatar
Research Associate, Advisors: Jaideep Srivastava and Ahmed Elmagarmid
Social Computing Group |
| 2014-2014 | Mayo Clinic, Rochester, MN
Graduate Research Assistant, Advisor: Jyotishman Pathak
Center for the Science of Health Discovery |
| 2014-2015 | Allina Health, Minneapolis, MN
Graduate Research Assistant, Advisors: Prasanna Desikan, TC Tong
Division of Applied Research |
| 2012-2018 | University of Minnesota, Minneapolis, MN
Graduate Research Assistant, Advisor: Jaideep Srivastava
Department of Computer Science |

INDUSTRY EXPERIENCE

2017-2017	Apple Inc. Wireless Technologies Research & Development, Manager: Brent Ledvina
2015-2015	Apple Inc. Special Projects, Manager: Jerremy Holland
2013-2013	Intel Corp. Thermal Power Validation, Manager: David Hayden
2012-2013	Cogcubed (Start-up) Research & Development, Manager: Kurt Roots
2010-2013	Mphasis Software Development , Manager: Joseph Murphy

TEACHING EXPERIENCE

COURSEWORK

2015	Principles of Databases (CS 5707), University of Minnesota
2015	Introduction to Java Programming (CS 1103), University of Minnesota
2014	Principles of Databases (CS 5707), University of Minnesota
2013	Principles of Databases (CS 5707), University of Minnesota
2013	Introduction to C++ Programming (CS 1113), University of Minnesota

ADVISING & MENTORING

2016-2018	Karan Agarwal (PhD Student at University of Minnesota)
2016-2018	Matheus Araujo (PhD Student at University of Minnesota)

GRANTS

Active 2018-2020	National Institute of Child Health and Human Development T32 Training Grant
Completed 2017-2018	University of Minnesota Doctoral Dissertation Fellowship
Completed 2016-2016	Qatar Foundation Research Fellowship
Pending	American Epilepsy Society Research Fellowship
Pending	Lóreal Women in Science Research Fellowship

HONOURS AND AWARDS

2019	Young Investigator Award <i>American Epilepsy Society</i>
2019	Women in AMIA Leadership Scholar <i>American Medical Informatics Association</i>
2018	National Honourable Mention <i>National Center for Women in Technology</i>
2017	Regional Collegiate Award <i>National Center for Women in Technology</i>
2017	Doctoral Dissertation Fellow <i>University of Minnesota</i>
2017	Big Data for Computational Medicine Fellow <i>National Institute of Health's Big Data to Knowledge Initiative</i>
2016	Grace Hopper Scholar <i>Qatar Computing Research Institute</i>
2015	International Leadership Changemaker <i>Institute of Electrical and Electronics Engineers - Women in Engineering</i>
2014	Graduate Research Cohort Award <i>Computing Research Association</i>
2012-2015	Grace Hopper Scholar <i>University of Minnesota</i>

SERVICE

University	Programming Committee, Harvard Biotechnology Club Founder, Computational Health Informatics Machine Learning Club Founder, Computational Health Informatics Postdoctoral Student Group
Community	National Center of Women in Technology, mentor and volunteer (2018-2020) Scientista, poster competition judge (2019) Aarohan NGO, teacher and volunteer (2012-2020)
Editorial	NPJ Digital Medicine Journal of Medical Informatics Research Journal of Healthcare Informatics Research Journal of Translational Engineering in Health and Medicine American Medical Informatics Association
Professional Societies	Institute of Electrical and Electronics Engineers (IEEE) IEEE Women in Engineering IEEE Computer Society American Medical Informatics Association IEEE Signal Processing Society American Epilepsy Society American Clinical Neurology Society

PATENTS

- 2020 Dynamic Activity Recommendation System
U.S. Patent Application 16/556,647, filed March 5, 2020.
- 2020 Machine Learning Assisted Satellite Based Positioning
U.S. Patent Application 16/536,234, filed February 13, 2020.

SELECTED INVITED TALKS

- 2019 A Digital Biomarker for Benign Childhood Epilepsy with Centrotemporal Spikes
American Clinical Neurophysiology Society's Annual Meeting
- 2019 Measuring Drug Effects on Brain Dynamics
American Epilepsy Society's Annual Meeting
- 2019 A Digital Biomarker for Benign Childhood Epilepsy with Centrotemporal Spikes
American Medical Informatics Association's Annual Symposium
- 2019 Measuring Drug Effects on Brain Dynamics
Boston Children's Hospital, Grand Rounds for the Department of Epilepsy
- 2019 Measuring Drug Effects on Brain Dynamics
Boston Children's Hospital, Grand Rounds for the Division of Neurology
- 2018 The Future of Sleep Health: A Data-Driven Revolution in Sleep Science and
Medicine
IEEE Engineering in Biology and Medicine
- 2018 Experiences as a Women in Technology
National Center for Women in Technology Board of Directors
- 2017 Computational Sleep Science
Massachusetts Institute of Technology - Computer Science and Artificial
Intelligence Lab
- 2017 Computational Sleep Science
Massachusetts Institute of Technology - Lincoln Lab
- 2017 The Science of Sweet Dreams
IEEE Computer Society Podcast
- 2017 Computational Sleep Science
University of Minnesota Open House
- 2016 Robust Automated Human Activity Recognition
IEEE Data Mining Human Activity Analysis Workshop
- 2015 A Framework for Predicting Rx Response
MinneWIC
- 2014 Clinical Decision Making: Predicting Patient Response to Metformin
IEEE International Conference on Data Mining PhD Forum
- 2014 Leveraging EHR Data Using Predictive Modeling
Computing Research Association Graduate Research Cohort

PEER REVIEWED PUBLICATIONS

- P9 Nonlinear Analysis of Visually Normal EEGs to Differentiate Benign Childhood Epilepsy with Centrotemporal Spikes
Aarti Sathyanarayana, Rima El Atrache, Michele Jackson, Aliza Alter, Kenneth Mandl, Tobias Loddenkemper, William Bosl.
Scientific Reports (*Accepted*)
- P8 A Digital Biomarker for Benign Childhood Epilepsy with Centrotemporal Spikes
Aarti Sathyanarayana, Rima El Atrache, Michele Jackson, Kenneth Mandl, Tobias Loddenkemper, William Bosl.
Journal of Clinical Neurophysiology (2019)
- P7 Measuring Drug Effects on Brain Dynamics through Electroencephalography
Aarti Sathyanarayana, Rima El Atrache, Michele Jackson, Kenneth Mandl, Tobias Loddenkemper, William Bosl.
American Epilepsy Society Annual Meeting Database (2019)
- P6 Benchmark on a Large Cohort for Sleep-wake Classification with Machine Learning Techniques.
Palotti, Joao, Raghvendra Mall, Michael Aupetit, Michael Rueschman, Meghna Singh,
Aarti Sathyanarayana, Shahrads Taheri, Luis Fernandez-Luque.
npj Digital Medicine (2019)
- P5 The Science of Sweet Dreams: Wearable Devices and Sleep Medicine
Aarti Sathyanarayana, Luis Fernandez-Luque, Jaideep Srivastava
IEEE Computer Magazine (2017)
- P4 Sleep Quality Prediction From Wearable Data Using Deep Learning
Aarti Sathyanarayana, Shafiq Joty, Luis Fernandez-Luque, Ferda Ofli, Jaideep Srivastava, Ahmed Elmagarmid, Teresa Arora, and Shahrads Taheri
JMIR mHealth and uHealth (2016)
- P3 Robust Automated Human Activity Recognition
Aarti Sathyanarayana, Luis Fernandez-Luque, Ferda Ofli, Jaideep Srivastava, Ahmed Elmagarmid, Teresa Arora, and Shahrads Taheri
Proceedings of the IEEE International Conference on Data Mining Workshops (2016)
- P2 Clinical Decision Making: Predicting Patient Response to Prescription Medication
Aarti Sathyanarayana, Jyotishman Pathak, Rozalina McCoy, Santiago Romero-Brufau, Maryam Panaziah, Jaideep Srivastava
Proceedings of the IEEE International Conference on Data Mining Workshops (2014)
- P1 Online Healthcare Management
Prasanna Desikan, **Aarti Sathyanarayana**, Jaideep Srivastava
Encyclopedia of Social Network Analysis and Mining (2014)

REFERENCES

Kenneth Mandl, MD.	kenneth.mandl@childrens.harvard.edu
William Bosl, PhD.	william.bosl@childrens.harvard.edu
Jukka-Pekka Onnela, PhD.	onnela@hsph.harvard.edu
Tobias Loddenkemper, MD.	tobias.loddenkemper@childrens.harvard.edu
Guergana Savova, PhD.	guergana.savova@childrens.harvard.edu
Jaideep Srivastava, PhD.	srivasta@umn.edu
Vipin Kumar, PhD.	kumar001@umn.edu
Jyotishman Pathak, PhD.	jyp2001@med.cornell.edu
Brent Ledvina, PhD.	bledvina@apple.com