

Aditya Ponnada

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Research Interests:

Human Computer Interaction, Mobile/Ubiquitous Computing, Personal Informatics

Education:

Northeastern University, Boston, MA

PhD, Personal Health Informatics,
Khoury College of Computer and Information Sciences and
Bouve College of Health Sciences,
Advisor: Dr. Stephen Intille

Sep 2015 - present

Indian Institute of Technology, Guwahati, India

Bachelor in Design (B.Des),
Department of Design,
Advisors: Prof. Pradeep Yammiyavar & Prof. Debayan Dhar

Jul 2009-Jun 2013

Research Experience:

Research Assistant, mhealth Research Group, Northeastern University

Advisor: Prof. Stephen Intille

Designed microinteractions-based experience sampling method on smartwatch for light-weight low burden self-report data collection

Developed MixWILD tool to support convenient multi-level modelling of intensive longitudinal data collected using mobile technologies

Developed human-computation games to crowdsource raw wearable sensor data annotation for activity recognition research

Developed Signaligner Pro for seamless exploration and annotation of multi-day raw sensor data from wearable devices

Currently leading a multi-year intensive longitudinal study to gather and model health behaviors and decisions making using passive sensing and innovative self-report methods

Sep 2015-present

Research Intern, Philips Design, Cambridge, MA

Advisor: Leontien de Roode

Developed a smartwatch-based emergency response app for older adults in assistive living facilities

Explored physician-AI interactions for a novel hemodynamic instability prediction algorithm used in ICUs

May 2019-Aug 2019

Research Assistant, Eindhoven Univ. of Technology, The Netherlands

Advisors: Prof. Jaap Ham and Prof. Cees Midden

Studied the effect of subtle mimicry by a virtual social agent on user's perceived trust

May 2012-Jul 2012

Research Assistant, UE & HCI Lab, IIT Guwahati, India

Advisors: Prof. Pradeep Yammiyavar and Prof. Debayan Dhar

Analyzed trust-manipulating user-interface elements or "dark design patterns" in early-stage online shopping websites in India

Jan 2012-April 2012

Industrial Experience:

Sr. UX Researcher, Samsung R&D Institute, Bangalore, India

Designed assistive tools on Samsung smartphones for visually impaired users – resulted in the accessibility unlock feature for Samsung S6 model

Explored barriers of mobile multitasking in Samsung smartphones

Mar 2015-July 2015

UX Researcher, Samsung R&D Institute, Bangalore, India

Designed long-term engagement features for personal health suite called "S-Health" for flagship Samsung smartphones

Jul 2013-Feb 2015

Explored text-input interactions to improve speed and accuracy of typing on Samsung's soft input panel

Studied the design space for an ultra-low-cost smartphone for Indian market – early stages of Samsung's Tizen operating system

UX Intern, Iridium Interactive Pvt. Ltd., Hyderabad, India
Designed a social media application for Golfers in India

May 2011-Jul 2011

Peer-reviewed Journal and Conference Publications:

Dunton, G.F., Wang, W., Intille, S.S., Dzubur, E., **Ponnada, A.** Hedeker, D. Interplay Between Micro-, Meso-, and Macro-temporal Processes in Health Behavior Change: An Illustrative Example of Affect Dynamics and Physical Activity in Children. *Journal of Behavioral Medicine*. (*Under review, 2021*)

Aditya Ponnada, Binod Thapa-Chhetry, Justin Manjourides, and Stephen Intille. Measuring criterion validity of microinteraction ecological momentary assessment (Micro-EMA): Pilot study with physical activity measurement. **JMIR mHealth and uHealth** (2021), 9(3) e23391.

Chih-Hsiang Yang, Jaclyn P. Maher, **Aditya Ponnada**, Eldin Dzubur, Rachel Nordgren, Stephen Intille, Donald Hedeker, and Genevieve F. Dunton. An empirical example of analysis using a two-stage modeling approach: Within-subject association of outdoor context and physical activity predicts future daily physical activity levels. **Translational Behavioral Medicine** (2020)

Eldin Dzubur, **Aditya Ponnada**, Rachel Nordgren, Chih-Hsiang Yang, Stephen Intille, Genevieve Dunton, and Donald Hedeker. MixWILD: A program for examining the effects of variance and slope of time-varying variables in intensive longitudinal data. **Behavior Research Methods** (2020): 1-25.

Aditya Ponnada, Seth Cooper, Binod Thapa-Chhetry, Josh Aaron Miller, Dinesh John, and Stephen Intille. 2019. Designing videogames to crowdsource accelerometer data annotation for activity recognition research. In Proceedings of the Annual Symposium on Computer-Human Interaction in Play (**CHI PLAY'19**). Association for Computing Machinery, New York, NY, USA, 135–147.

Farnaz Irannejad Bisafar, **Aditya Ponnada**, Ameneh Shamekhi, and Andrea G. Parker. 2017. A sociotechnical study of a community-based rewards program: Insights on building social, financial and human capital. In Proc. ACM Human-Computer Interact. 1, **CSCW**, Article 55 (November 2017), 21 pages.

Aditya Ponnada, Caitlin Haynes, Dharam Maniar, Justin Manjourides, and Stephen Intille. 2017. Microinteraction ecological momentary assessment response rates: Effect of microinteractions or the smartwatch? Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. (**IMWUT**) 1, 3, Article 92 (September 2017), 16 pages.

Stephen Intille, Caitlin Haynes, Dharam Maniar, **Aditya Ponnada**, and Justin Manjourides. 2016. μ EMA: Microinteraction-based ecological momentary assessment (EMA) using a smartwatch. In Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (**UbiComp '16**). Association for Computing Machinery, New York, NY, USA, 1124–1128.

Sanjay Ghosh, Sarita Seshagiri, and **Aditya Ponnada**. 2016. Exploring regional user experience for designing ultra-low-cost smart phones. In Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems (**CHI EA '16**). Association for Computing Machinery, New York, NY, USA, 768–776.

Frank Verberne, Jaap Ham, **Aditya Ponnada**, and Cees JH Midden. Trusting digital chameleons: The effect of mimicry by a virtual social agent on user trust. In *International Conference on Persuasive Technology (PERSUASIVE'13)*, pp. 234-245. Springer, Berlin, Heidelberg, 2013. [**Best Paper Award at PERSUASIVE 2013**].

Peer-reviewed Workshop Publications:

Aditya Ponnada, Seth Cooper, Qu Tang, Binod Thapa-Chhetry, Josh Miller, Dinesh John, and Stephen Intille. Signaligner Pro: A tool to explore and annotate multi-day raw accelerometer data. **PerCom'21 workshops**, p475-480.

Qu Tang, **Aditya Ponnada**, and Stephen Intille. 2020. Towards personal hand hygiene detection in free-living using wearable devices. Machine Learning for Mobile Health Workshop at **NeurIPS'20**. [selected for Spotlight Presentation]

Presentations:

[**TALK**] “The very basics of user research” at Indian School of Business — 2021. Host – Harmanpreet Singh

[**DEMO**] “Signaligner Pro: A tool to explore and annotate multi-day raw accelerometer data” at IEEE PerCom (ARDUOUS Workshop) — 2021.

[**TALK**] “Introduction to mobile, wearable, and ubiquitous interaction design” – guest lecture at undergraduate level human computer interaction course at Northeastern University. Host – Stefan Olafsson (Instructor of record)

[**TALK**] “Health behavior research – A design problem” at Golnvo (formerly Involution Studios), Cambridge, MA — 2019. Host – Juhan Sonin

[TALK] “Microinteractions-based ecological momentary assessments (μ EMA) using a smartwatch” at Patient-Reported Outcomes, Values, and Experiences (PROVE) center, Brigham and Women’s Health, Harvard Medical, Boston, MA — 2018. Host – Prof. Chris Sidey-Gibbons

[TALK] “Longitudinal measurement of self-reported behavior using wearable devices” at MITRE Corporation, Cambridge, MA — 2018. Host – Harry Sleeper

[TALK] “Using microinteractions for longitudinal measurement of human behavior”, at Human Factors and Ergonomic Society (HFES), New England Chapter Student Research Symposium, Draper Laboratories, Cambridge, MA –2018.

[POSTER] “Using microinteractions for longitudinal measurement of human behavior”, at Data Science in Biomedical Research (Marvin Zelen Memorial Symposium), Dana Farber Cancer Research Institute, Boston, MA — 2018.

[POSTER] “Using microinteractions for longitudinal measurement of human behavior”, at Research, Innovation, and Scholarship Expo (RISE 2018), Northeastern University, Boston, MA — 2018.

[POSTER] “Can microinteractions improve longitudinal measurement of behavior?” at Annual Boston Area Psychology Grad Student Symposium (April 2017), Northeastern University, Boston, MA — 2017.

[TALK] “Can microinteractions improve longitudinal measurement of behavior?”, at PHI Seminar on Health and Technology (Sept 2016), Northeastern University, Boston, MA — 2016.

Honors & Awards:

BostonCHI Lifetime Membership, awarded by FutureWei Technologies, 2020

Best Presentation Award, at HFES New England Chapter’s student research symposium, 2018

NUTECH + AWS Award, awarded \$5000 of AWS credits to develop human computation games, 2018

Amandus H. Lundqvist Scholarship (ALSP-silver) for MS studies in TU Eindhoven, The Netherlands, 2015

Young Achiever of the Year Award (2nd Position), Samsung Annual Awards, 2013-2014

Employee of the Month Award, Samsung R&D Bangalore, October 2013

Best Research Paper Award, PERSUASIVE 2013

Student Travel Grant, Intelligent HCI Conference, 2012

Service:

Vice-chair, Steering committee at BostonCHI, Boston area chapter of ACM SIGCHI, 2021-present

Chair, Student Design Consortium, IndiaHCI 2015

Open-source contributions, MixWILD, Signaligner Pro

Reviewer – computer science conferences, CHI (2017-21), IMWUT (UbiComp 2019-22), TOCHI, CSCW’21

Reviewer – engineering conferences, IEEE EMBS’19

Reviewer – health science and technology journals, JMIR, JMPB

Representative, DUPC (Department Undergraduate Program Committee), IIT Guwahati

Skills:

Research: Qualitative and quantitative methods, focus group sessions, experience sampling, psychophysiological assessments, longitudinal experiment design, scientific writing

Design: Hi & lo-fi prototyping, card sorting, participatory design, heuristic evaluation, A/B testing, think aloud protocols, hierarchical task analysis, data visualization

Programming: Python, R, Java, C#, SQL, SAS, HTML, CSS, ActionScript, Processing

Software/Tools/APIs: Android Studio, RStudio, PyCharm, Visual Studio Code, Unity, NetBeans, SPSS, SAS, Git, Adobe Creative Suite, Tableau, P5.js, and AWS (S3 and DynamoDB)

Data analysis: Univariate & multivariate statistics, regression analysis (linear, non-linear, and logistic), power analysis, factor analysis, applied supervised learning, time series analysis, multilevel modeling, visual analytics