

NATASHA YAMANE

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EDUCATION

- 2020–Present PhD Candidate, Personal Health Informatics, Northeastern University, Boston, MA
2016–2018 MA, Clinical Psychology, Teachers College, Columbia University, New York, NY
2008–2012 BA, Psychology, Barnard College, Columbia University, New York, NY

RESEARCH EXPERIENCE

- 2020–Present **Graduate Research Assistant & Lab Manager**
Computational Behavioral Science Lab, Northeastern University (*PI: Matthew S. Goodwin, PhD*)
- Performs signal quality assessment and processing on data from individuals with autism
 - Mentors undergraduate research assistants in independent research projects
 - Supervises the maintenance of laboratory equipment and spaces
- 2017–2020 **Research Assistant**
Neurology, Columbia University Irving Medical Center (*PI: Sylvie Goldman, PhD*)
- Processed and analyzed data in MATLAB, R, and SPSS
 - Collected EEG data from children with autism and other developmental delays
 - Assisted with the preparation of manuscripts, grant proposals, and conference posters
- 2017–2019 **Research Assistant**
Child Psychiatry, New York State Psychiatric Institute (*PI: Beatrice Beebe, PhD*)
- Trained research assistants in microanalytic coding of mother-infant audio data
 - Performed interrater reliability assessment for annotated audio data
 - Developed custom data preprocessing programs in MATLAB
- 2011–2012 **Research Intern**
Developmental Neuroscience, New York State Psychiatric Institute (*PI: Michael Myers, PhD*)
- Completed an undergraduate research thesis (see page 2)
 - Performed video-based behavioral annotations on parent-child interactions
 - Performed data preprocessing and analysis in SPSS
- 2010 **Research Intern**
Neurocentre Magendie, Université de Bordeaux and INSERM (*PI: Stéphane Oliet, PhD*)
- Shadowed electrophysiological recording procedures on rodent brain slices
 - Observed and annotated rodent behaviors
 - Trained in preparing DNA construct and performing basic PCR techniques

RESEARCH PROJECTS

(+ Involvement as project lead; ✦ Academic thesis)

- 2024–Present **A multimodal and multimethod assessment of dyadic biobehavioral synchrony in children with autism spectrum disorder + ✦**
- This dissertation investigates the use of multiple modalities and time series techniques to: 1) validate measures of behavioral and physiological synchrony in parent-child dyads with and without autism spectrum disorder, and 2) highlight the interplay between behavioral and physiological dynamics underlying social behaviors in autism.
- 2023 **Contemporary biosensing technologies and systems for music-based stress management +**
- This PhD qualifying exam paper reviews and categorizes recent biosensing technologies integrated with music for stress management, identifying trends and research gaps to guide future work in music therapy and affective computing.

- 2023 **From beat to better: Exploring music-based entrainment for health +**
 This PhD qualifying exam paper reviews evidence of music’s health benefits through intrapersonal and interpersonal entrainment, identifying key research directions to guide health and music psychology experts in developing music-based interventions.
- 2022–Present **Developing an open-source web-based quality assessment pipeline for analysis of ambulatory physiological data +** (github.com/cbslneu/heartview)
 This project involves developing an open-source interactive web-based visualization tool that performs automated signal quality assessment by identifying artifacts and missing data in ambulatory cardiovascular and electrodermal activity recordings.
- 2022–Present **Regulating Together: An intensive outpatient group treatment targeting emotional dysregulation** (PI: Rebecca Shaffer, PsyD)
 This clinical trial evaluates the efficacy of an emotion regulation intervention with autistic youth and their caregivers and to identify barriers, facilitators, and predictors of treatment responsiveness. Responsibilities: Data collection consulting; physiological data quality assessment.
- 2020–2022 **Girls and early markers of autism** (PI: Sylvie Goldman, PhD)
 This project explored gendered appearance rigidity as a precursor to camouflaging in girls with and without autism. Responsibilities: Study design; data collection; data analysis.
- 2020–2021 **Physiological mechanisms of action relating to immediate and long-term therapeutic horseback riding intervention effects in a psychiatric population of youth with autism spectrum disorder** (PI: Robin Gabriels, PsyD)
 This randomized control trial (RCT) seeks to assess the physiological mechanisms underlying the effects of Therapeutic Horseback Riding on youth with autism. Responsibilities: Data collection training and consulting; physiological data quality assessment.
- 2018 **Identifying vocal-motor behaviors of joint engagement in parents and children with autism spectrum disorder +**
 This project involved developing the Vocal-Motor Coding System (VMCS) to quantify joint engagement in children with autism spectrum disorder and their parents using properties of motor (i.e., proximity, orientation, and object–touch) and vocal (i.e., loudness, vocalizations, pauses, and switching pauses) behaviors.
- 2012 **Prenatal maternal psychopathology and mother-child emotional availability +**
 This project assessed whether prenatal maternal depression and anxiety predict later lower emotional availability in dyadic interactions of mothers and children aged 4.5 years.

PUBLICATIONS

- Dunn, J., Mishra, V., Shandhi, M. M. H., Jeong, H., **Yamane, N.**, Watanabe, Y., Chen, B., and Goodwin, M. S. (Under review). Building an open-source community to enhance autonomic nervous system signal analysis: DBDP-Autonomic. Manuscript submitted to *Frontiers in Digital Health*. <https://arxiv.org/abs/2403.17165>
- **Yamane, N.**, Mishra, V., & Goodwin, M. S. (2024). HeartView: An extensible, open-source, web-based signal quality assessment pipeline for ambulatory cardiovascular data. In D. Salvi, P. Van Gorp, & S. A. Shah (Eds.), *Pervasive Computing Technologies for Healthcare* (pp. 107–123). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-59717-6_8
- **Yamane, N.**, Snow, A. D., Fein, D., Naigles, L., and Goldman, S. (2022). Brief report: Parent-guided movements during play with children with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 94, Article 101968. <https://doi.org/10.1016/j.rasd.2022.101968>

- Ardalan, A., **Yamane, N.**, Rao, A. K., Montes, J., and Goldman, S. (2021). Analysis of gait synchrony and balance in neurodevelopmental disorders using computer vision techniques. *Health Informatics Journal*, 27(4), 1–12. <https://doi.org/10.1177/14604582211055650>
- Abbruzzese, L. D., **Yamane, N.**, Fein, D., Naigles, L., and Goldman, S. (2020). Assessing child postural variability: Development, feasibility, and reliability of a video coding system. *Physical and Occupational Therapy in Pediatrics*, 41(3), 314–325. <https://doi.org/10.1080/01942638.2020.1833272>

CONFERENCE TALKS & POSTERS

- **Yamane, N.**, Lansberry, H., and Goodwin, M. S., (Under review). *An exploratory study of cardiac synchrony and joint engagement in parent-child dyads of autistic and neurotypical children*. 2025 INSAR Annual Meeting, Seattle, WA, United States.
- Murali, P., **Yamane, N.**, Hernandez, J., Marsella, S., Goodwin, M., and Bickmore, T. (2024, September). *Feeling-the-Beat: Enhancing empathy and engagement during public speaking through heart rate sharing*. [Conference presentation]. ACII 2024: 12th International Conference on Affective Computing & Intelligent Interaction, Glasgow, Scotland.
- **Yamane, N.**, Mishra, V., and Goodwin, M. S. (2023, November). HeartView: An extensible, open-source, web-based signal quality assessment pipeline for ambulatory cardiovascular data. [Conference presentation]. EAI PervasiveHealth 2023: 17th International EAI Conference on Pervasive Computing Technologies for Healthcare, Malmö, Sweden.
- **Yamane, N.**, Mishra, V., and Goodwin, M. S. (2023, May). *Developing an open-source web-based data quality assessment pipeline for analysis of ambulatory cardiovascular data in individuals with autism* [Technology demonstration]. 2023 INSAR Annual Meeting, Stockholm, Sweden.
- Goldman, S., Martin, M. J., Ehteshami, L., and **Yamane, N.** (2022, May). *Increased feminine gender markers in toddler girls with and without autism spectrum disorder* [Conference poster]. 2022 INSAR Annual Meeting, Austin, TX, United States.
- Ardalan, A., **Yamane, N.**, and Goldman, S. (2021, May). *A computational approach for analyzing gait synchrony and balance in neurodevelopmental disorders* [Conference poster]. 2021 INSAR Annual Meeting, Boston, MA, United States.
- Goldman, S., Isler, J., **Yamane, N.**, Wyne, S., Myers, M., and Tottenham, N. (2020, May). *An EEG study of music and speech processing in children with autism spectrum disorder* [Conference poster]. 2020 INSAR Annual Meeting, Seattle, WA, United States.
- Goldman, S., Isler, J., **Yamane, N.**, Wyne, S., Myers, M., and Tottenham, N. (2020, May). *An EEG study of music and speech processing in children with autism spectrum disorder* [Conference poster]. 2020 Women in Science at Columbia Graduate Research Symposium at Columbia University, New York, NY, United States.
- Goldman, S., Isler, J., **Yamane, N.**, Wyne, S., Myers, M., and Tottenham, N. (2019, August). *An EEG study of music and speech processing in children with autism spectrum disorder* [Conference poster]. 2019 Biennial Meeting of the Society for Music Perception and Cognition, New York, NY, United States.
- Goldman, S., McGowan, N., Thapa, L., **Yamane, N. M.**, Fein, D., Naigles, L., and Abbruzzese, L. D. (2019, May). *W-sitting and sociomotor behaviors in toddlers with autism spectrum disorders: True or false?* [Conference poster]. 2019 INSAR Annual Meeting, Montreal, QC, Canada.
- Beebe, B., Lee, S. H., DelGaudio, R., Hersche, E., Sherwin, E., Abrahams, L., Carney, S., Davis, A., Malouta, C., Kahya, Y., Raudales, A. Roman, M., **Yamane, N.**, Bowman, A., and Ende, R. (2019, May). *Risk and resilience in 9/11 pregnant widows and their infants at one year* [Conference poster]. 31st Annual Convention of the Association for Psychological Science, Washington, DC., United States.
- Beebe, B., Margolis, A., Lee, S. H., Peterson, B., Dailami, M., Davis, A., Emanet, N., Zhong, D., **Yamane, N.**, Rahman, M., Joseph, J., Staniaszek, K., Malouta, C., Levy, J., and Banker, S. (2018, July). *Clustering infant communication: Carving nature at its joints* [Conference poster]. ICIS 2018 of the International Congress of Infant Studies, Philadelphia, PA, United States.

- **Yamane, N. M.**, McCullough, A. K., and Goldman, S. (2018, May). *Identifying vocal-motor behaviors of joint engagement in children with autism spectrum disorder and their parents* [Conference poster]. Master's Integrative Project Showcase at Teachers College, Columbia University, New York, NY, United States.
- **Yamane, N. M.**, McCullough, A. K., and Goldman, S. (2018, April). *Identifying vocal-motor behaviors of joint engagement in children with autism spectrum disorder and their parents* [Conference poster]. 2nd Annual Women in Science at Columbia Graduate Research Symposium at Columbia University, New York, NY, United States.
- **Yamane, N. M.** (2012, May). *Antepartum psychopathology: A predictor of postpartum emotional availability?* [Conference presentation]. Twelfth Annual Stanford Undergraduate Psychology Conference at Stanford University, Stanford, CA, United States.

GRANTS & FUNDING

2018–2019 **Center for Science and Society at Columbia University**
 Seed Grants for Interdisciplinary Projects – \$3,000
Project: **Sex, Gender, and Autism Spectrum Disorder** • Role: Co-Principal Investigator
 This seminar series aimed to inform and illuminate students on what is currently known about the effects of sex and gender on the diagnosis of autism spectrum disorder, as well as its implications for child and family interventions and legal services. Discussions have generated proposals for future research projects.

INVITED PRESENTATIONS

2021, April **Gender disparities in autism spectrum disorder**
 Dept. of Health Sciences, Northeastern University, Boston, MA, United States

2020, March **Parents' use of music with children with autism spectrum disorder**
 Dept. of Psychology, University of British Columbia, Vancouver, BC, Canada

2018, May **Vocal-motor analysis of joint engagement in parents and children with autism spectrum disorder**
 Inaugural Student Showcase, Child and Adolescent Mental Health Project, Teachers College, Columbia University, New York, NY, United States

TEACHING

2023, Spring **PHTH 4202: Principles of Epidemiology in Medicine and Public Health**
 Bouvé College of Health Sciences, Northeastern University, Boston, MA
 Guest Lecturer (January 20, 2023)

2022, Spring **CS 4910: Wearables and Biobehavioral Health**
 Khoury College of Computer Sciences, Northeastern University, Boston, MA
 Instructor of Record; Developer of course materials

2021, Spring **PHTH 4202: Principles of Epidemiology in Medicine and Public Health**
 Bouvé College of Health Sciences, Northeastern University, Boston, MA
 Teaching Assistant

2020, Fall **PHTH 4202: Principles of Epidemiology in Medicine and Public Health**
 Bouvé College of Health Sciences, Northeastern University, Boston, MA
 Teaching Assistant

MEMBERSHIP

2024–Present Society for Psychophysiological Research (SPR), Student Member

2021–Present Graduate Employees of Northeastern University, Northeastern University, Member

2020–Present International Society for Autism Research (INSAR), Student Member

2020–Present Khoury PhD Women, Northeastern University, Member
2016–Present American Psychological Association (APA), Graduate Student Affiliate
2019–2020 Society for Music Perception and Cognition (SMPC), Member
2017–2020 Psi Chi International Honor Society in Psychology, Graduate Student Member
2016–2019 Association for Women in Psychology (AWP), Member
2016–2019 Asian American Psychological Association (AAPA), Student Member

TECHNICAL SKILLS

Programming/Development Python, R, MATLAB, HTML/CSS, Jupyter, Google Colab, PyCharm, RStudio, Git, GitHub, SSH, Terminal (Bash/Zsh), Flask, MongoDB
Data Science Pandas, NumPy, Scikit-Learn, Matplotlib, Seaborn, Plotly, TensorFlow
Research MindWare HRV/EDA Analysis, Datavyu, Audacity, Tableau, Qualtrics, REDCap, SPSS, STATA
Design Adobe XD/Photoshop/Lightroom, Axure, Figma, Canva

ADDITIONAL PROFESSIONAL EXPERIENCE

2013–2016 **Sales & Marketing Coordinator**
Different Roads to Learning, Inc., New York, NY

- Researched new product and consumer trends in special education markets
- Maintained company website, blog, and marketing campaigns
- Designed print- and web-based promotional materials
- Responded to customer inquiries and complaints