Peter Yiğitcan Washington

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Education

Ph.D. **Stanford University.** Bioengineering (AI for Healthcare). Stanford Interdisciplinary Graduate Fellowship (SIGF). September 2017 – Present.

M.S. **Stanford University.** Computer Science. Specialization in Human-Computer Interaction (HCI). September 2015 - June 2018.

B.A. **Rice University.** Computer Science. Cum laude. Distinction in Research and Creative Works. August 2011 – May 2015.

Industry Experience

- **MLPro**. Co-Founder and Lead Machine Learning Content Creator — February 2021 – Present
- **AI Instructor**. Inspirit AI — June 2019 – July 2021
- **Google**. Software Engineering Internship — June 2016 – September 2016
- **Delphix**. Software Engineering Internship — May 2015 – August 2015
- **Amazon**. Software Engineering Internship — May 2014 – August 2014
- **Spiceworks**. Software Engineering Internship — May 2013 – August 2013
- **Microsoft Research**. Visiting Student with Sharad Agarwal and Lin Zhong — May 2012 – August 2012

Publications

Papers

- **Washington, Peter**, Emilie Leblanc, Kaitlyn Dunlap, Aaron Kline, Cezmi Mutlu, Brianna Chrisman, Nate Stockham, Kelley Paskov, and Dennis Paul Wall. "Crowd Annotations Can Approximate Clinical Autism Impressions from Short Home Videos with Privacy Protections." *Under review* (2021).
- Chi, Nathan, **Peter Washington**, and Dennis P. Wall. "Classifying Autism from Crowdsourced Semi-Structured Speech Recordings: A Machine Learning Approach." *Under review* (2021).
- Banerjee, Agnik, **Peter Washington**, Cezmi Mutlu, Aaron Kline, and Dennis P. Wall. "Training and Profiling a Pediatric Emotion Recognition Classifier on Mobile Devices." *Under review* (2021).
- Lakkapragada, Anish, Aaron Kline, Onur Cezmi Mutlu, Kelley Paskov, Brianna Chrisman, Nate Stockham, **Peter Washington**, and Dennis Wall. "Classification of Abnormal Hand Movement for Aiding in Autism Detection: Machine Learning Study." *Under review* (2021).
- **Washington, Peter**, Qandeel Tariq, Emilie Leblanc, Brianna Chrisman, Kaitlyn Dunlap, Aaron Kline, Haik Kalantarian et al. "Crowdsourced privacy-preserved feature tagging of short home videos for machine learning ASD detection." *Scientific reports* 11, no. 1 (2021): 1-11.
- **Washington, Peter**, Haik Kalantarian, Jack Kent, Arman Husic, Aaron Kline, Emilie Leblanc, Cathy Hou et al. "Training Affective Computer Vision Models by Crowdsourcing Soft-Target Labels." *Cognitive Computation* 13, no. 5 (2021): 1363-1373.

- **Washington, Peter**, Aaron Kline, Onur Cezmi Mutlu, Emilie Leblanc, Cathy Hou, Nate Stockham, Kelley Paskov, Brianna Chrisman, and Dennis Wall. "Activity Recognition with Moving Cameras and Few Training Examples: Applications for Detection of Autism-Related Headbanging." In *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems*, pp. 1-7. 2021.
- Shih, Cynthia, Ruhi Pudipeddi, Arany Uthayakumar, and **Peter Washington**. "A local community-based social network for mental health and well-being (Quokka): exploratory feasibility study." *JMIRx Med* 2, no. 4 (2021): e24972.
- Penev, Yordan, Kaitlyn Dunlap, Arman Husic, Cathy Hou, **Peter Washington**, Emilie Leblanc, Aaron Kline et al. "A Mobile Game Platform for Improving Social Communication in Children with Autism: A Feasibility Study." *Applied clinical informatics* 12, no. 05 (2021): 1030-1040.
- **Washington, Peter**, Emilie Leblanc, Kaitlyn Dunlap, Yordan Penev, Aaron Kline, Kelley Paskov, Min Woo Sun et al. "Precision telemedicine through crowdsourced machine learning: testing variability of crowd workers for video-based autism feature recognition." *Journal of personalized medicine* 10, no. 3 (2020): 86.
- **Washington, Peter**, Serena Yeung, Bethany Percha, Nicholas Tatonetti, Jan Liphardt, and Dennis P. Wall. "Achieving trustworthy biomedical data solutions." In *BIOCOMPUTING 2021: Proceedings of the Pacific Symposium*, pp. 1-13. 2020.
- **Washington, Peter**, Emilie Leblanc, Kaitlyn Dunlap, Yordan Penev, Maya Varma, Jae-Yoon Jung, Brianna Chrisman et al. "Selection of trustworthy crowd workers for telemedical diagnosis of pediatric autism spectrum disorder." In *BIOCOMPUTING 2021: Proceedings of the Pacific Symposium*, pp. 14-25. 2020.
- **Washington, Peter**, Kelley Paskov, Haik Kalantarian, Nathaniel Stockham, Catalin Voss, Aaron Kline, Ritik Patnaik, Brianna Chrisman, Maya Varma, Qandeel Tariq, Kaitlyn Dunlap, Jessey Schwartz, Nick Haber, Dennis P. Wall. "Feature Selection and Dimension Reduction of Social Autism Data." *Pacific Symposium on Biocompuuting* (2020).
- **Washington, Peter**, Natalie Park, Parishkrita Srivastava, Catalin Voss, Aaron Kline, Maya Varma, Qandeel Tariq, Haik Kalantarian, Jessey Schwartz, Ritik Patnaik, Nick Haber, Dennis P. Wall. "Data-Driven Diagnostics and the Potential of Mobile Artificial Intelligence for Digital Therapeutic Phenotyping in Computational Psychiatry." *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* (2020).
- Leblanc, Emilie, **Peter Washington**, Maya Varma, Kaitlyn Dunlap, Yordan Penev, Aaron Kline, and Dennis P. Wall. "Feature replacement methods enable reliable home video analysis for machine learning detection of autism." *Scientific reports* 10, no. 1 (2020): 1-11.
- Kalantarian, Haik, Khaled Jedoui, Kaitlyn Dunlap, Jessey Schwartz, **Peter Washington**, Arman Husic, Qandeel Tariq, Michael Ning, Aaron Kline, and Dennis Paul Wall. "The performance of emotion classifiers for children with parent-reported autism: quantitative feasibility study." *JMIR mental health* 7, no. 4 (2020): e13174.
- Chrisman, Brianna Sierra, Kelley Paskov, Nate Stockham, Jae-Yoon Jung, Maya Varma, **Peter Washington**, and Dennis P. Wall. "Common Microdeletions in SARS-CoV-2 Sequences." *Virological. org* (2020).

- Chrisman, Brianna, Kelley Paskov, Nate Stockham, Kevin Tabatabaei, Jae-Yoon Jung, **Peter Washington**, Maya Varma, Min Woo Sun, Sepideh Maleki, and Dennis Paul Wall. "Structural Variants in SARS-CoV-2 Occur at Template-Switching Hotspots." *bioRxiv* (2020).
- Sun, Min Woo, Stefano Moretti, Kelley M. Paskov, Nate T. Stockham, Maya Varma, Brianna S. Chrisman, **Peter Y. Washington**, Jae-Yoon Jung, and Dennis P. Wall. "Game theoretic centrality: a novel approach to prioritize disease candidate genes by combining biological networks with the Shapley value." *BMC bioinformatics* 21, no. 1 (2020): 1-10.
- **Washington, Peter**, Haik Kalantarian, Qandeel Tariq, Jessey Schwartz, Kaitlyn Dunlap, Brianna Chrisman, Maya Varma, Michael Ning, Aaron Kline, Nathaniel Stockham, Kelley Paskov, Catalin Voss, Nick Haber, Dennis P. Wall. "Validity of Online Screening for Autism: Crowdsourcing Study Comparing Paid and Unpaid Diagnostic Tasks." *Journal of Medical Internet Research (JMIR)* 21, no. 5 (2019): e13668.
- **Washington, Peter**, Karina G. Samuel-Gama, Shirish Goyal, Ashwin Ramaswami, and Ingmar H. Riedel-Kruse. "Interactive programming paradigm for real-time experimentation with remote living matter." *Proceedings of the National Academy of Sciences (PNAS)* 116, no. 12 (2019): 5411-5419.
- Das, Rhiju, Benjamin Keep, **Peter Washington**, and Ingmar H. Riedel-Kruse. "Scientific Discovery Games for Biomedical Research." *Annual Review of Biomedical Data Science* 2 (2019): 253-279.
- Kalantarian, Haik, Khaled Jedoui, **Peter Washington**, Qandeel Tariq, Kaiti Dunlap, Jessey Schwartz, and Dennis P. Wall. "Labeling images with facial emotion and the potential for pediatric healthcare." *Artificial Intelligence in Medicine* 98 (2019): 77-86.
- Voss, Catalin, Jessey Schwartz, Jena Daniels, Aaron Kline, Nick Haber, **Peter Washington**, Qandeel Tariq, Thomas Robinson, Manisha Desai, Jennifer Phillips, Carl Feinstein, Terry Winograd, Dennis P. Wall. "Effect of Wearable Digital Intervention for Improving Socialization in Children With Autism Spectrum Disorder: A Randomized Clinical Trial." *JAMA pediatrics* 173, no. 5 (2019): 446-454.
- Kalantarian, Haik, **Peter Washington**, Jessey Schwartz, Jena Daniels, Nick Haber, and Dennis P. Wall. "Guess What?." *Journal of Healthcare Informatics Research* 3, no. 1 (2019): 43-66.
- Ning, Michael, Jena Daniels, Jessey Schwartz, Kaitlyn Dunlap, **Peter Washington**, Haik Kalantarian, Michael Du, and Dennis P. Wall. "Identification and Quantification of Gaps in Access to Autism Resources in the United States: An Infodemiological Study." *Journal of medical Internet research* 21, no. 7 (2019): e13094.
- Tariq, Qandeel, Scott Lanyon Fleming, Jessey Nicole Schwartz, Kaitlyn Dunlap, Conor Corbin, **Peter Washington**, Haik Kalantarian, Naila Z. Khan, Gary L. Darmstadt, and Dennis Paul Wall. "Detecting Developmental Delay and Autism Through Machine Learning Models Using Home Videos of Bangladeshi Children: Development and Validation Study." *Journal of medical Internet research* 21, no. 4 (2019): e13822.
- Varma, Maya, Kelley Marie Paskov, Jae-Yoon Jung, Brianna Sierra Chrisman, Nate Tyler Stockham, **Peter Washington**, and Dennis Paul Wall. "Outgroup Machine Learning Approach Identifies Single Nucleotide Variants in Noncoding DNA Associated with Autism Spectrum Disorder." In *Pacific Symposium on Biocomputing*, pp. 260-271. 2019.
- **Washington, Peter**, Karina G. Samuel-Gama, Shirish Goyal, Ashwin Ramaswami, and Ingmar H. Riedel-Kruse. "Prototyping Biotic Games and Interactive Experiments with JavaScript."

In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems*, p. D415. ACM, 2018. (Acceptance rate 31%)

- Chrisman, Brianna, Maya Varma, **Peter Washington**, Kelley Paskov, Nate Stockham, Jae-Yoon Jung, and Dennis P. Wall. "Analysis of Sex and Recurrence Ratios in Simplex and Multiplex Autism Spectrum Disorder Implicates Sex-Specific Alleles as Inheritance Mechanism." In *2018 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, pp. 1470-1477. IEEE, 2018.
- Tariq, Qandeel, Jena Daniels, Jessey Nicole Schwartz, **Peter Washington**, Haik Kalantarian, and Dennis Paul Wall. "Mobile detection of autism through machine learning on home video: A development and prospective validation study." *PLoS medicine* 15, no. 11 (2018): e1002705.
- Kalantarian, Haik, Khaled Jedoui, **Peter Washington**, and Dennis P. Wall. "A Mobile Game for Automatic Emotion-Labeling of Images." *IEEE Transactions on Games* (2018).
- Kalantarian, Haik, **Peter Washington**, Jessey Schwartz, Jena Daniels, Nick Haber, and Dennis Wall. "A Gamified Mobile System for Crowdsourcing Video for Autism Research." In *2018 IEEE International Conference on Healthcare Informatics (ICHI)*, pp. 350-352. IEEE, 2018.
- Daniels, Jena, Jessey N. Schwartz, Catalin Voss, Nick Haber, Azar Fazel, Aaron Kline, **Peter Washington**, Carl Feinstein, Terry Winograd, and Dennis P. Wall. "Exploratory study examining the at-home feasibility of a wearable tool for social-affective learning in children with autism." *npj Digital Medicine* 1, no. 1 (2018): 32.
- Daniels, Jena, Nick Haber, Catalin Voss, Jessey Schwartz, Serena Tamura, Azar Fazel, Aaron Kline, **Peter Washington**, Jennifer Phillips, Terry Winograd, Carl Feinstein, Dennis P. Wall. "Feasibility testing of a wearable behavioral aid for social learning in children with autism." *Applied clinical informatics* 9, no. 01 (2018): 129-140.
- **Washington, Peter**, Catalin Voss, Aaron Kline, Nick Haber, Jena Daniels, Azar Fazel, Titas De, Carl Feinstein, Terry Winograd, and Dennis P. Wall. "Superpowerglass: A wearable aid for the at-home therapy of children with autism." *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 1, no. 3 (2017): 112. Presented at UbiComp 2017.
- Dietz, Griffin, Jane E, **Peter Washington**, Lawrence H. Kim, and Sean Follmer. "Human perception of swarm robot motion." In *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, pp. 2520-2527. ACM, 2017. (Acceptance rate 20%)
- **Washington, Peter**, Catalin Voss, Nick Haber, Serena Tanaka, Jena Daniels, Carl Feinstein, Terry Winograd, and Dennis Wall. "A wearable social interaction aid for children with autism." In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, pp. 2348-2354. ACM, 2016. (Acceptance rate 20%)
- **Washington, Peter**, Mayank Kumar, Anant Tibrewal, and Ashutosh Sabharwal. "ScaleMed: A methodology for iterative mHealth clinical trials." In *2015 17th International Conference on E-health Networking, Application & Services (HealthCom)*, pp. 139-143. IEEE, 2015.
- LiKamWa, Robert, Yunhui Hou, **Peter Washington**, and Lin Zhong. "Invited Paper: Rethinking the Imaging Pipeline for Energy-Efficient Privacy-Preserving Continuous Mobile Vision." In *SID Symposium Digest of Technical Papers*, vol. 46, no. 1, pp. 187-188. 2015.
- Sani, Ardalan Amiri, Zhiyong Tan, **Peter Washington**, Mira Chen, Sharad Agarwal, Lin Zhong, and Ming Zhang. "The wireless data drain of users, apps, & platforms." *ACM SIGMOBILE Mobile Computing and Communications Review* 17, no. 4 (2013): 15-28.

Teaching Assistantships

Stanford University

- Senior Capstone Design (BioE141A) – Fall 2019
- Ethics in Bioengineering (BioE131) – Spring 2019
- Human-Computer Interaction Design Studio (CS247) – Winter 2017
- Data Visualization (CS448B) – Spring 2016, Fall 2016
- Operating Systems (CS140) – Fall 2015, Winter 2016

Rice University

- Innovation Lab in Mobile Health (ELEC 419) – Spring 2015
- Program Design (COMP 215) – Fall 2014
- Algorithmic Thinking (COMP 182) – Spring 2012, Spring 2013, Spring 2014
- Computational Thinking (COMP 140) – Fall 2012, Fall 2013

Awards and Honors

- Stanford Interdisciplinary Graduate Fellowship (SIGF)
- Stanford Biomedical Informatics Retreat Best Poster, 3rd Place, 2019
- Best Class Project, Stanford CS247, Winter 2016 (1 of 1 awarded for team of 3; 85 students enrolled)
- Best Class Project, Stanford CS376, Fall 2016 (1 of 2 awarded for team of 3; 35 students enrolled)
- Rice Engineering Alumni Outstanding Research Excellence Award, 2015 (1 of 2 awarded)
- Rice Engineering Alumni Computer Science Senior Merit Award, 2015 (1 of 1 awarded)
- Rice Engineering Alumni Computer Science Junior Merit Award, 2014 (1 of 1 awarded)
- Rice Undergraduate Research Symposium Top-Three Engineering Individual Projects, 2014 (1 of 3 awarded)
- Rice Undergraduate Scholars Program, 2013 – 2014

Talks

- **Washington, Peter**, Dennis P. Wall. "Achieving Trustworthy Biomedical Data Solutions". Pacific Symposium of Biocomputing 2021. Conference session organizer.
- **Washington, Peter**, Dennis P. Wall. "Data-Driven Identification of Predictive Social Responsiveness Biomarkers for Autism". Stanford Maternal & Child Health Research Institute (MCHRI) Symposium, Early Career Investigators and Trainees session. 2019. Stanford, CA. (sole presenter)
- **Washington, Peter**. "Understanding Neuromorphic Computing." Nepes AI. 2019. San Jose, CA. (sole presenter)
- **Washington, Peter**. "Crowd-Powered Science." Rice Computer Science Alumni Meetup. 2018. San Francisco, CA. (sole presenter)
- **Washington, Peter**, Catalin Voss, Aaron Kline, Nick Haber, Jena Daniels, Azar Fazel, Titas De, Carl Feinstein, Terry Winograd, and Dennis P. Wall. "Superpowerglass: A wearable aid for the at-home

therapy of children with autism." ACM Ubicomp. 2017. Maui, HI. (presented together with Aaron Kline)

- **Washington, Peter**, Mayank Kumar, Anant Tibrewal, and Ashutosh Sabharwal. "ScaleMed: A methodology for iterative mHealth clinical trials." IEEE Healthcom. 2015. Boston, MA. (sole presenter)

Poster Presentations

Poster presentation for which I am a coauthor but did not present are not included.

- **Washington, Peter** and Dennis P. Wall. "Mining the Humuhumunukunukuapua'a and the Shaka of Autism with Big Data Biomedical Data Science." Pacific Symposium on Biocomputing. 2020. Big Island, HI. (presented with Dennis P. Wall)
- **Washington, Peter**. "Data-Driven Identification of Predictive Social Responsiveness Biomarkers for Autism." 7th Annual Molecular Psychiatry Meeting. 2019. San Francisco, CA. (sole presenter)
- **Washington, Peter**, Karina Samuel-Gama, and Ingmar Riedel-Kruse. 62nd Annual Biophysical Society Meeting. "A Programming Toolkit for Automating Biophysics Experiments with Microorganism Swarms." 2018. San Francisco, CA. (sole presenter)

Professional Activities

Paper Reviewing: IEEE Pervasive Computing, Journal of Medical Internet Research (JMIR), ACM CHI Full Papers (2019), ACM CSCW Full Papers (2018), ACM UIST Full Papers (2018), ACM DIS Full Papers (2018), ACM MobileHCI Posters (2018), ACM DIS Works in Progress (2018), ACM IDC Works in Progress (2018), ACM CHI Late-Breaking Work (2018), ACM TEI Late-Breaking Work (2018)

Conference Student Volunteering: CHI 2016, UbiComp 2017

Teaching:

- Machine Learning Instructor for InspiritAI in New Delhi, India (summer 2019) and online (summer 2020)
- Instructor for Stanford Institutes of Medicine Summer Research Program (SIMR) Bioengineering Bootcamp (summer 2018)

Mentoring:

- High school research mentor, Wall Lab (summer 2019 and summer 2020)
- Undergraduate research mentor, Wall Lab (summer 2020)
- Private middle and high school programming instructor (2019 – present)
- Programming tutor for Cardinal Tutors (2018 - 2019)
- Stanford Bioengineering REU summer mentor (2017 and 2018)

Leadership

- Pacific Symposium on Biocomputing (PSB) 2021 conference session organizer for "Achieving Trustworthy Biomedical Data"
- President, Rice Computer Science Club, 2013-2014
- Lead organizer, Hack Rice 2014

Committees

- Faculty candidate student interviewer, Stanford Bioengineering, 2020
- Advocacy Committee, Stanford Bioengineering, 2020 – 2021: working towards implementing anti-racist change in academia and beyond