


# Stanford

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## Peter Washington

Ph.D. Student in Bioengineering, admitted Summer 2017

 Curriculum Vitae available Online

### Bio

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#### BIO

I am a PhD student in Bioengineering specializing in the intersection of biodesign and machine learning for understanding, treating, and tracking neuropsychiatric conditions.

As a highly interdisciplinary translational researcher, I have several academic interests and my thesis work therefore spans the engineering, design, scientific, algorithmic, and clinical questions associated with developing new technologies to transform healthcare and diagnostics.

Before coming to Stanford, I completed an undergraduate degree in Computer Science at Rice University in Houston, Texas.

#### EDUCATION AND CERTIFICATIONS

- Master of Science, Stanford University , CS-MS (2018)
- BA, Rice University , Computer Science (2015)

#### STANFORD ADVISORS

- Dennis Wall, Doctoral Dissertation Advisor (AC)
- Bo Wang, Doctoral (Program)
- Russ Altman, Doctoral Dissertation Reader (AC)
- Jan Liphardt, Doctoral Dissertation Reader (AC)

#### LINKS

- Personal Site: <https://www.peterwashington.net/>
- LinkedIn: <https://www.linkedin.com/in/washingtonpeter/>
- Twitter: [https://twitter.com/peter\\_washing](https://twitter.com/peter_washing)
- Wall Lab profile: <https://wall-lab.stanford.edu/people/current/peter/>
- Bioengineering profile: <https://bioengineering.stanford.edu/people/peter-washington>
- Instagram: <https://www.instagram.com/scienceinthetrap/>

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

I am currently a graduate student in Bioengineering specializing in biomedical data science, utilizing techniques from and innovating in crowdsourcing healthcare, applied machine learning, computational psychiatry, translational bioinformatics, human-computer interaction, and mobile/wearable systems.

I have several academic interests and my thesis work therefore spans the engineering, design, scientific, algorithmic, and clinical questions associated with developing new technologies to transform healthcare and diagnostics.

### Publications

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#### PUBLICATIONS

- **Precision Telemedicine through Crowdsourced Machine Learning: Testing Variability of Crowd Workers for Video-Based Autism Feature Recognition.** *Journal of personalized medicine*  
Washington, P., Leblanc, E., Dunlap, K., Penev, Y., Kline, A., Paskov, K., Sun, M. W., Chrisman, B., Stockham, N., Varma, M., Voss, C., Haber, N., Wall, et al  
2020; 10 (3)
- **Game theoretic centrality: a novel approach to prioritize disease candidate genes by combining biological networks with the Shapley value.** *BMC bioinformatics*  
Sun, M. W., Moretti, S., Paskov, K. M., Stockham, N. T., Varma, M., Chrisman, B. S., Washington, P. Y., Jung, J., Wall, D. P.  
2020; 21 (1): 356
- **The Performance of Emotion Classifiers for Children With Parent-Reported Autism: Quantitative Feasibility Study.** *JMIR mental health*  
Kalantarian, H., Jedoui, K., Dunlap, K., Schwartz, J., Washington, P., Husic, A., Tariq, Q., Ning, M., Kline, A., Wall, D. P.  
2020; 7 (4): e13174
- **Feature Selection and Dimension Reduction of Social Autism Data.** *Pacific Symposium on Biocomputing. Pacific Symposium on Biocomputing*  
Washington, P., Paskov, K. M., Kalantarian, H., Stockham, N., Voss, C., Kline, A., Patnaik, R., Chrisman, B., Varma, M., Tariq, Q., Dunlap, K., Schwartz, J., Haber, et al  
2020; 25: 707–18
- **A Mobile Game for Automatic Emotion-Labeling of Images.** *IEEE transactions on games*  
Kalantarian, H., Jedoui, K., Washington, P., Wall, D. P.  
2020; 12 (2): 213–18
- **Data-Driven Diagnostics and the Potential of Mobile Artificial Intelligence for Digital Therapeutic Phenotyping in Computational Psychiatry.** *Biological psychiatry. Cognitive neuroscience and neuroimaging*  
Washington, P., Park, N., Srivastava, P., Voss, C., Kline, A., Varma, M., Tariq, Q., Kalantarian, H., Schwartz, J., Patnaik, R., Chrisman, B., Stockham, N., Paskov, et al  
2019
- **SUPERPOWER GLASS MOBILE COMPUTING AND COMMUNICATIONS REVIEW**  
Kline, A., Voss, C., Washington, P., Haber, N., Schwartz, J., Tariq, Q., Winograd, T., Feinstein, C., Wall, D. P.  
2019; 23 (2): 35–38
- **Validity of Online Screening for Autism: Crowdsourcing Study Comparing Paid and Unpaid Diagnostic Tasks.** *Journal of medical Internet research*  
Washington, P., Kalantarian, H., Tariq, Q., Schwartz, J., Dunlap, K., Chrisman, B., Varma, M., Ning, M., Kline, A., Stockham, N., Paskov, K., Voss, C., Haber, et al  
2019; 21 (5): e13668
- **Effect of Wearable Digital Intervention for Improving Socialization in Children With Autism Spectrum Disorder A Randomized Clinical Trial** *JAMA PEDIATRICS*  
Voss, C., Schwartz, J., Daniels, J., Kline, A., Haber, N., Washington, P., Tariq, Q., Robinson, T. N., Desai, M., Phillips, J. M., Feinstein, C., Winograd, T., Wall, et al  
2019; 173 (5): 446–54

- **Detecting Developmental Delay and Autism Through Machine Learning Models Using Home Videos of Bangladeshi Children: Development and Validation Study** *JOURNAL OF MEDICAL INTERNET RESEARCH*  
Tariq, Q., Fleming, S., Schwartz, J., Dunlap, K., Corbin, C., Washington, P., Kalantarian, H., Khan, N. Z., Darmstadt, G. L., Wall, D.  
2019; 21 (4)
- **Effect of Wearable Digital Intervention for Improving Socialization in Children With Autism Spectrum Disorder: A Randomized Clinical Trial.** *JAMA pediatrics*  
Voss, C., Schwartz, J., Daniels, J., Kline, A., Haber, N., Washington, P., Tariq, Q., Robinson, T. N., Desai, M., Phillips, J. M., Feinstein, C., Winograd, T., Wall, et al  
2019
- **Interactive programming paradigm for real-time experimentation with remote living matter.** *Proceedings of the National Academy of Sciences of the United States of America*  
Washington, P., Samuel-Gama, K. G., Goyal, S., Ramaswami, A., Riedel-Kruse, I. H.  
2019
- **Identification and Quantification of Gaps in Access to Autism Resources in the United States: An Infodemiological Study.** *Journal of medical Internet research*  
Ning, M., Daniels, J., Schwartz, J., Dunlap, K., Washington, P., Kalantarian, H., Du, M., Wall, D. P.  
2019; 21 (7): e13094
- **Scientific Discovery Games for Biomedical Research** *ANNUAL REVIEW OF BIOMEDICAL DATA SCIENCE, VOL 2, 2019*  
Das, R., Keep, B., Washington, P., Riedel-Kruse, I. H., Altman, R. B., Levitt, M.  
2019; 2: 253–79
- **Labeling images with facial emotion and the potential for pediatric healthcare.** *Artificial intelligence in medicine*  
Kalantarian, H., Jedoui, K., Washington, P., Tariq, Q., Dunlap, K., Schwartz, J., Wall, D. P.  
2019; 98: 77–86
- **Outgroup Machine Learning Approach Identifies Single Nucleotide Variants in Noncoding DNA Associated with Autism Spectrum Disorder**  
Varma, M., Paskov, K., Jung, J., Chrisman, B., Stockham, N., Washington, P., Wall, D., Altman, R. B., Dunker, A. K., Hunter, L., Ritchie, M. D., Murray, T., Klein, et al  
WORLD SCIENTIFIC PUBL CO PTE LTD.2019: 260–71
- **Outgroup Machine Learning Approach Identifies Single Nucleotide Variants in Noncoding DNA Associated with Autism Spectrum Disorder.** *Pacific Symposium on Biocomputing. Pacific Symposium on Biocomputing*  
Varma, M., Paskov, K. M., Jung, J., Sierra Chrisman, B., Stockham, N. T., Washington, P. Y., Wall, D. P.  
2019; 24: 260–71
- **Detecting Developmental Delay and Autism Through Machine Learning Models Using Home Videos of Bangladeshi Children: Development and Validation Study.** *Journal of medical Internet research*  
Tariq, Q., Fleming, S. L., Schwartz, J. N., Dunlap, K., Corbin, C., Washington, P., Kalantarian, H., Khan, N. Z., Darmstadt, G. L., Wall, D. P.  
2019; 21 (4): e13822
- **Addendum to the Acknowledgements: Validity of Online Screening for Autism: Crowdsourcing Study Comparing Paid and Unpaid Diagnostic Tasks.** *Journal of medical Internet research*  
Washington, P., Kalantarian, H., Tariq, Q., Schwartz, J., Dunlap, K., Chrisman, B., Varma, M., Ning, M., Kline, A., Stockham, N., Paskov, K., Voss, C., Haber, et al  
2019; 21 (6): e14950
- **Mobile detection of autism through machine learning on home video: A development and prospective validation study.** *PLoS medicine*  
Tariq, Q., Daniels, J., Schwartz, J. N., Washington, P., Kalantarian, H., Wall, D. P.  
2018; 15 (11): e1002705
- **Exploratory study examining the at-home feasibility of a wearable tool for social-affective learning in children with autism** *NPJ DIGITAL MEDICINE*  
Daniels, J., Schwartz, J. N., Voss, C., Haber, N., Fazel, A., Kline, A., Washington, P., Feinstein, C., Winograd, T., Wall, D. P.  
2018; 1
- **A Programming Toolkit for Automating Biophysics Experiments with Microorganism Swarms**  
Washington, P., Samuel-Gama, K., Riedel-Kruse, I.  
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- **Feasibility Testing of a Wearable Behavioral Aid for Social Learning in Children with Autism** *APPLIED CLINICAL INFORMATICS*  
Daniels, J., Haber, N., Voss, C., Schwartz, J., Tamura, S., Fazel, A., Kline, A., Washington, P., Phillips, J., Winograd, T., Feinstein, C., Wall, D. P.  
2018; 9 (1): 129–40
- **Analysis of Sex and Recurrence Ratios in Simplex and Multiplex Autism Spectrum Disorder Implicates Sex-Specific Alleles as Inheritance Mechanism**  
Chrisman, B., Varma, M., Washington, P., Paskov, K., Stockham, N., Jung, J., Wall, D. P., Zheng, H., Callejas, Z., Griol, D., Wang, H., Hu, Schmidt, H., et al  
IEEE.2018: 1470–77
- **Exploratory study examining the at-home feasibility of a wearable tool for social-affective learning in children with autism.** *NPJ digital medicine*  
Daniels, J., Schwartz, J. N., Voss, C., Haber, N., Fazel, A., Kline, A., Washington, P., Feinstein, C., Winograd, T., Wall, D. P.  
2018; 1: 32
- **SuperpowerGlass: A Wearable Aid for the At-Home Therapy of Children with Autism** *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*  
Washington, P., Voss, C., Kline, A., Haber, N., Daniels, J., Fazel, A., De, T., Feinstein, C., Winograd, T., Wall, D.  
2017
- **Bioty: A cloud-based development toolkit for programming experiments and interactive applications with living cells**  
Washington, P., Samuel-Gama, K., Goyal, S., Riedel-Kruse, I.  
bioRxiv.  
2017
- **Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies** *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*  
Washington, P., Voss, C., Haber, N., Tanaka, S., Daniels, J., Feinstein, C., Winograd, T., Wall, D.  
2016
- **Human Perception of Swarm Robot Motion**  
Dietz, G., E, J., Washington, P., Kim, L., Follmer, S.  
2016
- **ScaleMed: A methodology for iterative mHealth clinical trials** *17th International Conference on E-health Networking, Application & Services (HealthCom)*  
Washington, P., Kumar, M., Tibrewal, A., Sabharwal, A.  
2015
- **Rethinking the Imaging Pipeline for Energy#Efficient Privacy#Preserving Continuous Mobile Vision**  
LiKamWa, R., Hou, Y., Washington, P., Zhong, L.  
SID Symposium Digest of Technical Papers.  
2015
- **The wireless data drain of users, apps, & platforms** *ACM SIGMOBILE Mobile Computing and Communications Review*  
Sani, A., Tan, Z., Washington, P., Chen, M., Agarwal, S., Zhong, L., Zhang, M.  
2013; 17 (4)