

# SHARATH CHANDRA GUNTUKU

Nationality: Indian  
Residence: Legal Permanent Resident, U.S.  
Philadelphia, PA

<https://sharathg.cis.upenn.edu>  
[sharathg@cis.upenn.edu](mailto:sharathg@cis.upenn.edu)  
University of Pennsylvania

## EDUCATION

08/2013-05/2017	<b>PH.D. COMPUTER SCIENCE</b> Nanyang Technological University, Singapore GPA: 4.7 / 5.0 <b>Thesis:</b> Modeling User Factors in Multimedia Preferences <b>Award:</b> Nanyang Engineering Doctoral Award (6 of 106)
08/2009-05/2013	<b>B.E. (HONS) COMPUTER SCIENCE</b> Birla Institute of Technology and Science (BITS) - Pilani, India GPA: 8.99 / 10.0 <b>Thesis:</b> Detecting Security Threats in P2P Networks using Machine Learning <b>Award:</b> DRDO Merit Scholarship 2010-2011

## WORK EXPERIENCE

05/2020-now	<b>Assistant Professor (research track), Computer and Information Science</b> <b>Senior Fellow, Leonard Davis Institute of Health Economics</b> University of Pennsylvania, PA I lead a lab focused on cross-cultural and cross-lingual computational psychology and digital health research utilizing large-scale user-generated text, image, and sensor data to answer questions on geo-spatial and temporal aspects of human behavior.
09/2018-now	<b>Research Scientist</b> <b>Penn Medicine Center for Digital Health, PA</b> I lead initiatives on mining social media data to understand health behaviors, supplement clinical diagnoses and facilitate early and personalized interventions for improving treatments and well-being of patients.
04/2017-08/2018	<b>Postdoctoral Researcher, World Well-Being Project</b> University of Pennsylvania, PA I investigated the manifestation of conditions such as ADHD, stress, and depression on social media platforms using natural language processing and machine learning.
01/2016-06/2016	<b>Research Intern, Panasonic R&amp;D, Singapore</b> I developed deep learning framework for facial action unit recognition to detect drowsiness in automotive drivers.

## GRANTS

2022-2024	Global Engagement Fund - India (\$ 94,534; Role: Principal Investigator (PI))
2022-2023	Penn Medical Communication Pilot Grant (\$ 50,000; Role: co-PI; co-PI: Buttenheim)
2022-2023	Penn University Research Fund (\$ 49,951; Role: PI)
2022-2027	National Institutes of Health (NCI) (Role: Co-I; PI: Kornides; 1R37CA259210-01A1)
2018-2024	National Institutes of Health (NHLBI) (Role: Co-I; PI: Merchant; 5R01HL141844-02)
2021-2022	World Bank Group (\$ 49,309; Role: PI)
2021-2022	National Institutes of Health (NICHD) (\$ 73,862; Role: Co-I; PI: Alpern; 5R01HD087363-02)
2020-2021	Penn China Research and Engagement Fund (\$100,000; Role: Co-PI; PI: Ungar)
2020-2021	Google Cloud COVID-19 Credits (\$32,000; Role: PI)
2020-2021	PA State COVID-19 Response (Role: Co-I; PI: Volpp)
2019-2023	National Institutes of Health (NIMH) (Role: Co-I; PI: Barnett; 5R01MH116884-03)

2018-2023 National Institutes of Health (NIDA) (Role: Co-I; PI: Merchant; 5R21DA050761-02)  
 2013-2017 Nanyang Technological University Graduate Research Scholarship (SGD \$188,000)

## REPRESENTATIVE PUBLICATIONS

For full list (N=80), see [\[Google Scholar\]](#). \*\* Senior/Supervising Author

Current citations: 2306; i10-index: 46; h-index: 25

Acceptance rate of AAAI ICWSM, CSCW: 20-25%;

Impact Factors of IEEE TIP: 10.8; PNAS: 11.2; npj DM: 11.6; JMIR: 5.4; SciRep: 4.4; Vaccine: 3.6

- [ICWSM] Cui, J., Zhang, T., Pang, D., Jaidka, K., Sherman, G., Jakhetiya, V., ... & **Guntuku, S. C.** (2022). Social Media Reveals Urban-Rural Differences in Stress across China. In Proceedings of the *International AAAI Conference on Web and Social Media*. \*\*
- [ICWSM] Giorgi, S., **Guntuku, S. C.**, Rahman, M., Himelein-Wachowiak, M., Kwarteng, A., & Curtis, B. (2022). Twitter corpus of the blacklivesmatter movement and counter protests: 2013 to 2020. In Proceedings of the *International AAAI Conference on Web and Social Media*.
- [IEEE TIP] Jakhetiya, V., Chaudhary, S., Subudhi, B. N., Lin, W., & **Guntuku, S. C.** (2022). Perceptually Unimportant Information Reduction and Cosine Similarity-Based Quality Assessment of 3D-Synthesized Images. *IEEE Transactions on Image Processing*, 31, 2027-2039. \*\*
- [IEEE TIP] Jakhetiya, V., Mumtaz, D., Subudhi, B. N., & **Guntuku, S. C.** (2022). Stretching artifacts identification for quality assessment of 3D-synthesized views. *IEEE Tra. on Image Processing*. \*\*
- [PNAS] Eichstaedt, J. C., Sherman, G. T., Giorgi, S., Roberts, S. O., Reynolds, M. E., ... & **Guntuku, S. C.** (2021). The emotional and mental health impact of the murder of George Floyd on the US population. *Proceedings of the National Academy of Sciences* \*\*
- [ICWSM] Giorgi, S., **Guntuku, S. C.**, Eichstaedt, J. C., Pajot, C., Schwartz, H. A., & Ungar, L. H. (2021, May). Well-Being Depends on Social Comparison: Hierarchical Models of Twitter Language Suggest That Richer Neighbors Make You Less Happy. In Proceedings of the *International AAAI Conference on Web and Social Media*
- [Vaccine] **Guntuku, S. C.**, Buttenheim, A. M., Sherman, G., & Merchant, R. M. (2021). Twitter discourse reveals geographical and temporal variation in concerns about COVID-19 Vaccines in the United States. *Vaccine*.
- [JMIR] **Guntuku, S. C.**, Purtle, J., Meisel, Z. F., Merchant, R. M., & Agarwal, A. (2021). Partisan Differences in Twitter Language Among US Legislators During the COVID-19 Pandemic: Cross-sectional Study. *Journal of Medical Internet Research*, 23(6), e27300.
- [npj DM] **Guntuku, S. C.**, Klinger, E. V., McCalpin, H. J., Ungar, L. H., Asch, D. A., & Merchant, R. M. (2021). Social media language of healthcare super-utilizers. *NPJ digital medicine*
- [JGIM] **Guntuku, S. C.**, Sherman, G., Stokes, D. C., Agarwal, A. K., Seltzer, E., Merchant, R. M., & Ungar, L. H. (2020). Tracking mental health and symptom mentions on twitter during covid-19. *Journal of general internal medicine*, 35(9), 2798-2800.
- [CSCW] Li, M., Hickman, L., Tay, L., Ungar, L., & **Guntuku, S. C.** (2020). Studying Politeness across Cultures Using English Twitter and Mandarin Weibo. *ACM Computer-Supported Cooperative Work And Social Computing*. \*\*
- [SciRep] **Guntuku, S. C.**, Schwartz, H. A., Kashyap, A., Gaulton, J. S., Stokes, D. C., Asch, D. A., ... & Merchant, R. M. (2020). Variability in language used on social media prior to hospital visits. *Scientific reports*, 10(1), 1-9.
- [BMJ] **Guntuku, S. C.**, Schneider, R., Pelullo, A., Young, J., Wong, V., Ungar, L., ... & Merchant, R. (2019). Studying expressions of loneliness in individuals using twitter: an observational study. *BMJ open*, 9(11), e030355.
- [ICWSM] **Guntuku, S. C.**, Li, M., Tay, L., & Ungar, L. H. (2019, July). Studying cultural differences in emoji usage across the east and the west. In Proceedings of the *International AAAI Conference on Web and Social Media* (Vol. 13, pp. 226-235).
- [ICWSM] **Guntuku, S. C.**, Preotiuc-Pietro, D., Eichstaedt, J. C., & Ungar, L. H. (2019, July). What twitter profile and posted images reveal about depression and anxiety. In Proceedings of the *International AAAI Conference on Web and Social Media*
- [ICWSM] **Guntuku, S. C.**, Buffone, A., Jaidka, K., Eichstaedt, J. C., & Ungar, L. H. (2019, July). Understanding and measuring psychological stress using social media. In Proceedings of the *International AAAI Conference on Web and Social Media* (Vol. 13, pp. 214-225).
- [JAD] **Guntuku, S. C.**, Ramsay, J. R., Merchant, R. M., & Ungar, L. H. (2019). Language of ADHD in adults on social media. *Journal of Attention Disorders*, 23(12), 1475-1485.

## SPEAKING ENGAGEMENTS

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- 2022 Computational Social Listening During COVID-19 Using Social Media (*United Nations Development Program*, New York)
- 2022 Panel: India in the 21st Century (*Perry World House*, Philadelphia)
- 2019 Panel Chair: Promise, challenges, and risks of digital data in mental health research and care (*American Medical Informatics Association Annual Symposium*, Washington DC)
- 2019 User Generated Content: Opportunities for Health Care (*Langone School of Medicine*, NYU)
- 2019 Session Chair: Using Digital Data to Measure and Understand Mental Health and Well-Being, (*American Psychological Association Technology*, Mind and Society Conference (APA Tech), Washington DC)
- 2019 Using Social Media to Inform Healthcare (*Informatics Day, Institute of Biomedical Informatics*, UPenn)
- 2019 Studying Cultural Differences using Language (*Behavioral Insights from Text Conference*, Wharton School)
- 2018 Leveraging Social and Electronic Communications in Evaluation and Treatment (Technology in Psychiatry Summit (McLean and Harvard Med. School), Boston)
- 2018 Session Chair: Using Social Media to measure Psychological Health and Illness: From Individuals to Communities (American Psychological Association Technology, Mind and Society Conference (APA Tech), Washington DC)
- 2019 Assessing ADHD from Tweets (Society for Personality and Social Psychology (SPSP), Atlanta GA)
- 2017 Studying Personality through the Content of Posted and Liked Images on Twitter (ACM Web Science, Troy NY)
- 2016 Studying Personality through Selfies, (University of Pennsylvania, Philadelphia PA)
- 2015 Modelling Human Factors in Perceptual Multimedia Quality: On The Role of Personality and Culture (ACM Multimedia, Brisbane Australia)
- 2014 Deep Representations to Model User Likes (National University of Singapore)

## MEDIA ENGAGEMENTS

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- 2021 Penn Today: Community concerns about the COVID-19 vaccine tracked by Twitter [\[Link\]](#)
- 2021 PsyPost: Anger and sadness spiked dramatically following the murder of George Floyd, particularly among Black Americans [\[Link\]](#)
- 2021 Penn Today: Reported anger, sadness, depression, and anxiety spiked after George Floyd killing [\[Link\]](#)
- 2021 Psypost: New research uncovers some key differences in how Republicans and Democrats tweet about COVID-19 [\[Link\]](#)
- 2020 WIRED: An AI Used Facebook Data to Predict Mental Illness [\[Link\]](#)
- 2020 Twitter Official: See how the Penn Medicine CDH uses Twitter data to understand the COVID-19 health crisis [\[Link\]](#)
- 2019 The Atlantic: What Your Facebook Posts Say About Your Mental Health [\[Link\]](#)
- 2019 The Times of India: Twitter posts can reveal how lonely you are, says study [\[Link\]](#)
- 2019 The Inquirer: Twitter photos may help detect users with depression, anxiety [\[Link\]](#)
- 2019 Penn Today Cross-cultural similarities and differences in emoji usage [\[Link\]](#)
- 2019 KYW Radio: Social media pictures can show a lot more about your health than expected [\[Link\]](#)
- 2019 Tech Times: Twitter Users With Depression And Anxiety Tend To Post Grayscale And Low-Aesthetic Images [\[Link\]](#)
- 2019 NBC News: Mood-forecasting tech could help stop bad moods even before they strike [\[Link\]](#)
- 2018 American Psychological Association, Speaking of Psychology: Twitter and ADHD. [\[Link\]](#)
- 2018 Canadian Broadcasting Corporation: Data collection by #Facebook and other companies on OnTheMoneyCBC. [\[Link\]](#)
- 2018 Mashable: Psychographic profiling of your likes and dislikes isn't new, and it's not going away [\[Link\]](#)
- 2018 Psychiatric Times: What Twitter and Brain Imaging Reveal About ADHD. [\[Link\]](#)
- 2018 Faster than Normal (#1 ADHD podcast on iTunes): ADHD Twitter Scientist. [\[Link\]](#)
- 2017 Danish Politiken: Technology and social media can be used to detect people with depression [\[Link\]](#)
- 2017 The Conversation: Social media can be bad for youth mental health, but there are ways it can help. [\[Link\]](#)
- 2017 US News: Can Social Media Help Improve ADHD Treatments? [\[Link\]](#)

## MENTORSHIP

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### CURRENT

- Sunny Rai, Postdoctoral Researcher, UPenn
- Ashley Francisco, Ph.D student, UPenn
- Jeffrey (Young-Min) Cho, Data Scientist, UPenn
- Sukanya Joshi, M.S. Computer Science, UPenn
- Arnav Agarwal, B.S. Computer Science, UPenn (Wharton SPUR)
- Devansh Jain, B.S. Computer Science, BITS-Pilani (Visiting Student)

### ALUMNI

#### Graduate students

- Yiling Geng, M.S. E.E. (Thesis), UPenn (UPenn Master's Academic Award) → PhD (Hebrew University of Jerusalem)
- Jackie Peng, M.S. Data Science, UPenn (Hon. Mention UPenn Master's Research Award) → PhD (UPenn)
- Karan Wanchoo, M.S. E.E. (Thesis), UPenn (UPenn Master's Research Award) → McKinsey & Co.
- Shantenu Agarwal, M.S. Bioengineering (Thesis), UPenn → Soul Machines
- Mingyang Li, M.S. Data Science (Thesis), UPenn → Google → Ebay
- Agrima Seth, M.S. Computer Science (Thesis), UPenn → Morgan Stanley → PhD (UMich)
- Harry Wang, M.S. Computer Science, UPenn → Roku
- Juhi Mittal, M.Sc. Economics, BITS-Pilani (Visiting Student)
- Shivani Reddy, M.S. Computer Science, UPenn
- Yuchen Zhang, M.S. Data Science, UPenn
- Mohit Kumaraian, M.S. Computer Science, UPenn
- Yuchen Zhang, M.S. Data Science, UPenn
- Roshan Santosh, M.S. Data Science, UPenn → Facebook
- Swathi Rajanna, M.S. Computer Science, UPenn → Microsoft
- Yogitha Chilukuri, M.S. Computer Science, UPenn → Adobe
- Xiang Cui, M.S. Computer Science, UPenn
- Zeshen, M.S. Computer Science, UPenn

#### Undergraduate students

- Jesse Cui, B.S. Computer Science, UPenn → Facebook
- Jai Thirani, B.A.S Computer Science, (Thesis) UPenn → YCombinator (TAKT)
- Margaret Zheng, B.S. Computer Science, UPenn → Facebook
- He Chen, B.S. Computer Science, UPenn → Amazon Robotics
- Grace Jiang, B.S. Computer Science, UPenn
- Angel Fan, B.S. Computer Science, UPenn
- Qingrong Ji, B.S. Computer Science, UPenn
- Harish Tata, B.E. Computer Science, GITAM → M.S. UMKC → Cerner Corp.

## SERVICE

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### Associate Editor

- Frontiers in Psychology

### Reviewer/ Program Committee Member

- National Science Foundation Reviewer 2020
- Nature Communications
- BMC Psychiatry
- Scientific Reports
- American Journal of Preventive Medicine
- JAMA Network Open
- IEEE Transactions on Affective Computing
- IEEE Transactions on Image Processing
- IEEE Transactions on Multimedia
- EPJ Data Science
- ACM Conference on Computer Supported Cooperative Work

- AAAI Conference on Web and Social Media (ICWSM)
- American Medical Informatics Association Annual Symposium
- APA Technology, Mind & Society
- AMIA Applied Clinical Informatics
- International Conference on Acoustics, Speech, and Signal Processing
- International Conference on Image Processing
- PLoS One
- The Social Science Journal
- International Journal of Environmental Research and Public Health
- IEEE Transactions on Medical Imaging
- Journal of Clinical Medicine
- Society for Personality and Social Psychology Annual Symposium