Sharath Chandra Guntuku

Nationality: Indian
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Education

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

Work Experience

05/2020-now	Assistant Professor (research track), Computer and Information Science Senior Fellow, Leonard Davis Institute of Health Economics 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	Research Scientist Penn Medicine Center for Digital Health, PA 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	Postdoctoral Researcher, World Well-Being Project 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	Research Intern, Panasonic R&D, Singapore I developed deep learning framework for facial action unit recognition to detect drowsiness in automotive drivers.

Grants

2022-2027	National Institutes of Health (NIMHD)	($ 3.6M; Role: Principal Investigator (PI))
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)

Representative Publications

For full list (N=80), see [Google Scholar]. ⋆⋆ Senior/Supervising Author
Current citations: 2418; i10-index: 47; h-index: 27
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

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

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 OnThe-MoneyCBC. [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

CURRENT

- Sunny Rai, Postdocotoral Researcher, UPenn
- Ashley Francisco, Ph.D student, UPenn
- Jeffrey (Young-Min) Cho, Data Scientist, UPenn
- Sukanya Joshi, M.S. Data Science, UPenn
- David Ahn, M.S. Data 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

Associate Editor

- Frontiers in Psychology
- Frontiers in Public Health

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