


Stanford



Johannes C. Eichstaedt

Assistant Professor (Research) of Psychology

 Curriculum Vitae available Online

Bio

BIO

I am a computational social scientist in psychology, an Assistant Professor in Psychology, and the Shiram Faculty Fellow at the Institute for Human-Centered Artificial Intelligence.

At Stanford, I direct the Computational Psychology and Well-Being Lab. In 2011, I co-founded the World Well-Being Project at the University of Pennsylvania, which is now a big data psychology consortium.

How can Large Language Models (LLMs) be deployed for better mental health and well-being? One of the main directions of our lab is to determine the safe and responsible conditions under which LLMs can deliver psychotherapy and well-being interventions.

Over the last decade, we've pioneered methods of psychological text analysis. Specifically, we use social media (Facebook, Twitter, Reddit, ...) to measure the psychological states of populations and individuals. We use this to understand the thoughts, emotions, and behaviors that drive physical illness (like heart disease), depression, or support psychological well-being.

Such NLP approaches allow us to measure the psychology of populations unobtrusively—without needing to collect survey data. This is particularly helpful in under-resourced settings. The social media-based methods have sufficient spatial and temporal resolution to measure the impact of economic or social disruptions and to inform public policy (e.g., weekly county estimates).

A key emphasis of our work is to use the new generation of LLMs, data science, and AI for good, to benefit the social good, well-being, and health.

ACADEMIC APPOINTMENTS

- Assistant Professor (Research), Psychology
- Member, Bio-X
- Member, Wu Tsai Human Performance Alliance

ADMINISTRATIVE APPOINTMENTS

- Member, Open Science Committee, Psychology, (2020- present)

HONORS AND AWARDS

- John Philip Coghlan Fellowship, Stanford (2023-2025)

- Rising Star, Association for Psychological Science (2022)
- Early Career Researcher Award, International Positive Psychology Association (2021)
- Emerging Leader in Science & Society, American Association for the Advancement of Science (AAAS) (2014)

PROGRAM AFFILIATIONS

- Symbolic Systems Program

PROFESSIONAL EDUCATION

- Ph.D., University of Pennsylvania , Psychology (2017)
- M.A., University of Pennsylvania , Psychology (2013)
- MAPP, University of Pennsylvania , Positive Psychology (2011)
- M.S., University of Chicago , Particle Physics (2010)
- B.S. (Hons.), King's College, London , Physics & Philosophy (2009)

LINKS

- lab website: <https://cpwb.stanford.edu/>
- personal website: <https://jeichstaedt.com/>
- Google scholar: <https://scholar.google.com/citations?user=-mNEhD0AAAAJ&hl=en&inst=5746887945952177237&oi=ao>
- OSF Repositories: <https://osf.io/f5d2x>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Well-being: affect, life satisfaction, and purpose, and their individual and societal determinants (lifestyle factors and policies); traits: character strengths, personality, trust, and empathy

Mental and physical health: depression, stress, and anxiety; health psychology: heart disease and opioid addiction

Methods: Natural Language Processing & Large Language Models; data science and visualization; longitudinal methods, machine learning, and psychological assessment through AI

Teaching

COURSES

2022-23

- Natural Language Processing in the Social Sciences: PSYCH 290, SOC 281, SYMSYS 195T (Win)

2021-22

- Natural Language Processing & Text-Based Machine Learning in the Social Sciences: PSYCH 290, SOC 281, SYMSYS 195T (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Eva Bianchi

Postdoctoral Faculty Sponsor

Christopher Kelly, Elizabeth Stade

Publications

PUBLICATIONS

- **Which social media platforms facilitate monitoring the opioid crisis?** *medRxiv : the preprint server for health sciences*
Carpenter, K. A., Nguyen, A. T., Smith, D. A., Samori, I. A., Humphreys, K., Lembke, A., Kiang, M. V., Eichstaedt, J. C., Altman, R. B.
2024
- **Robust language-based mental health assessments in time and space through social media.** *NPJ digital medicine*
Mangalik, S., Eichstaedt, J. C., Giorgi, S., Mun, J., Ahmed, F., Gill, G., V Ganesan, A., Subrahmanya, S., Soni, N., Clouston, S. A., Schwartz, H. A.
2024; 7 (1): 109
- **Large language models could change the future of behavioral healthcare: a proposal for responsible development and evaluation.** *Npj mental health research*
Stade, E. C., Stirman, S. W., Ungar, L. H., Boland, C. L., Schwartz, H. A., Yaden, D. B., Sedoc, J., DeRubeis, R. J., Willer, R., Eichstaedt, J. C.
2024; 3 (1): 12
- **The Cantril Ladder elicits thoughts about power and wealth.** *Scientific reports*
Nilsson, A. H., Eichstaedt, J. C., Lomas, T., Schwartz, A., Kjell, O.
2024; 14 (1): 2642
- **The Language of Conflict Transformation: Assessing Psychological Change Patterns in Israeli-Palestinian Track Two Interactive Problem Solving** *NEGOTIATION AND CONFLICT MANAGEMENT RESEARCH*
Fink, O., Graf, W., Subrahmanya, S., Salecha, A., Eichstaedt, J. C.
2024; 17 (2): 130-152
- **Using large language models in psychology** *NATURE REVIEWS PSYCHOLOGY*
Demszky, D., Yang, D., Yeager, D., Bryan, C., Clapper, M., Chandhok, S., Eichstaedt, J., Hecht, C., Jamieson, J., Johnson, M., Jones, M., Krettek-Cobb, D., Lai, et al
2023; 2 (11): 688-701
- **Filling in the white space: Spatial interpolation with Gaussian processes and social media data.** *Current research in ecological and social psychology*
Giorgi, S., Eichstaedt, J. C., Preo#iuc-Pietro, D., Gardner, J. R., Schwartz, H. A., Ungar, L. H.
2023; 5
- **Depression and anxiety have distinct and overlapping language patterns: Results from a clinical interview.** *Journal of psychopathology and clinical science*
Stade, E. C., Ungar, L., Eichstaedt, J. C., Sherman, G., Ruscio, A. M.
2023
- **The value of social media language for the assessment of wellbeing: a systematic review and meta-analysis** *JOURNAL OF POSITIVE PSYCHOLOGY*
Sametoglu, S., Pelt, D. M., Eichstaedt, J. C., Ungar, L. H., Bartels, M.
2023
- **Predicting U.S. county opioid poisoning mortality from multi-modal social media and psychological self-report data.** *Scientific reports*
Giorgi, S., Yaden, D. B., Eichstaedt, J. C., Ungar, L. H., Schwartz, H. A., Kwarteng, A., Curtis, B.
2023; 13 (1): 9027
- **Characterizing empathy and compassion using computational linguistic analysis.** *Emotion (Washington, D.C.)*
Yaden, D. B., Giorgi, S., Jordan, M., Buffone, A., Eichstaedt, J. C., Schwartz, H. A., Ungar, L., Bloom, P.
2023
- **Comparison of wellbeing structures based on survey responses and social media language: A network analysis.** *Applied psychology. Health and well-being*
Sametoglu, S., Pelt, D. H., Eichstaedt, J. C., Ungar, L. H., Bartels, M.
2023
- **Measuring disadvantage: A systematic comparison of United States small-area disadvantage indices.** *Health & place*
Lou, S., Giorgi, S., Liu, T., Eichstaedt, J. C., Curtis, B.
2023; 80: 102997

- **Measuring the Burden of Infodemics: Summary of the Methods and Results of the Fifth WHO Infodemic Management Conference.** *JMIR infodemiology*
Wilhelm, E., Ballalai, I., Belanger, M. E., Benjamin, P., Bertrand-Ferrandis, C., Bezbaruah, S., Briand, S., Brooks, I., Bruns, R., Bucci, L. M., Calleja, N., Chiou, H., Devaria, et al
2023; 3: e44207
- **Detecting Symptoms of Depression on Reddit**
Liu, T., Jain, D., Rapole, S., Curtis, B., Eichstaedt, J. C., Ungar, L. H., Guntuku, S., ACM
ASSOC COMPUTING MACHINERY.2023: 174-183
- **Discourse-Level Representations can Improve Prediction of Degree of Anxiety**
Juhng, S., Matero, M., Varadarajan, V., Eichstaedt, J. C., Ganesan, A. V., Schwartz, H., Boyd-Graber, J., Okazaki, N., Rogers, A.
ASSOC COMPUTATIONAL LINGUISTICS-ACL.2023: 1500-1511
- **Depression and anxiety on Twitter during the COVID-19 stay-at-home period in seven major US cities.** *AJPM focus*
Levanti, D., Monastero, R. N., Zamani, M., Eichstaedt, J. C., Giorgi, S., Schwartz, H. A., Meliker, J. R.
2022: 100062
- **Head versus heart: social media reveals differential language of loneliness from depression.** *Npj mental health research*
Liu, T., Ungar, L. H., Curtis, B., Sherman, G., Yadeta, K., Tay, L., Eichstaedt, J. C., Guntuku, S. C.
2022; 1 (1): 16
- **Negative Associations in Word Embeddings Predict Anti-black Bias across Regions-but Only via Name Frequency.** *Proceedings of the ... International AAAI Conference on Weblogs and Social Media. International AAAI Conference on Weblogs and Social Media*
van Loon, A., Giorgi, S., Willer, R., Eichstaedt, J.
2022; 16: 1419-1424
- **Incivility Is Rising Among American Politicians on Twitter** *SOCIAL PSYCHOLOGICAL AND PERSONALITY SCIENCE*
Frimer, J. A., Aujla, H., Feinberg, M., Skitka, L. J., Aquino, K., Eichstaedt, J. C., Willer, R.
2022
- **The relationship between text message sentiment and self-reported depression.** *Journal of affective disorders*
Liu, T., Meyerhoff, J., Eichstaedt, J. C., Karr, C. J., Kaiser, S. M., Kording, K. P., Mohr, D. C., Ungar, L. H.
1800
- **Nonprofits: A Public Policy Tool for the Promotion of Community Subjective Well-being.** *Journal of public administration research and theory : J-PART*
Ressler, R. W., Paxton, P., Velasco, K., Pivnick, L., Weiss, I., Eichstaedt, J. C.
2021; 31 (4): 822-838
- **The emotional and mental health impact of the murder of George Floyd on the US population** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Eichstaedt, J. C., Sherman, G. T., Giorgi, S., Roberts, S. O., Reynolds, M. E., Ungar, L. H., Guntuku, S.
2021; 118 (39)
- **The emotional and mental health impact of the murder of George Floyd on the US population.** *Proceedings of the National Academy of Sciences of the United States of America*
Eichstaedt, J. C., Sherman, G. T., Giorgi, S., Roberts, S. O., Reynolds, M. E., Ungar, L. H., Guntuku, S. C.
2021; 118 (39)
- **Regional personality assessment through social media language.** *Journal of personality*
Giorgi, S., Nguyen, K. L., Eichstaedt, J. C., Kern, M. L., Yaden, D. B., Kosinski, M., Seligman, M. E., Ungar, L. H., Andrew Schwartz, H., Park, G.
2021
- **Closed- and open-vocabulary approaches to text analysis: A review, quantitative comparison, and recommendations.** *Psychological methods*
Eichstaedt, J. C., Kern, M. L., Yaden, D. B., Schwartz, H. A., Giorgi, S., Park, G., Hagan, C. A., Tobolsky, V. A., Smith, L. K., Buffone, A., Iwry, J., Seligman, M. E., Ungar, et al
2021; 26 (4): 398-427
- **World Trade Center responders in their own words: predicting PTSD symptom trajectories with AI-based language analyses of interviews.** *Psychological medicine*
Son, Y., Clouston, S. A., Kotov, R., Eichstaedt, J. C., Bromet, E. J., Luft, B. J., Schwartz, H. A.

2021: 1-9

- **Information-seeking vs. sharing: Which explains regional health? An analysis of Google Search and Twitter trends** *TELEMATICS AND INFORMATICS*
Jaidka, K., Eichstaedt, J., Giorgi, S., Schwartz, H., Ungar, L. H.
2021; 59
- **Beyond Beliefs: Multidimensional Aspects of Religion and Spirituality in Language** *PSYCHOLOGY OF RELIGION AND SPIRITUALITY*
Yaden, D. B., Giorgi, S., Kern, M. L., Adler, A., Ungar, L. H., Seligman, M. P., Eichstaedt, J. C.
2021
- **Well-Being Depends on Social Comparison: Hierarchical Models of Twitter Language Suggest That Richer Neighbors Make You Less Happy.** *Proceedings of the ... International AAAI Conference on Weblogs and Social Media. International AAAI Conference on Weblogs and Social Media*
Giorgi, S., Guntuku, S. C., Eichstaedt, J. C., Pajot, C., Schwartz, H. A., Ungar, L. H.
2021; 15: 1069-1074
- **Understanding Weekly COVID-19 Concerns through Dynamic Content-Specific LDA Topic Modeling.** *Proceedings of the Conference on Empirical Methods in Natural Language Processing. Conference on Empirical Methods in Natural Language Processing*
Zamani, M., Schwartz, H. A., Eichstaedt, J., Guntuku, S. C., Ganesan, A. V., Clouston, S., Giorgi, S.
2020; 2020: 193-198
- **(Un)happiness and voting in U.S. presidential elections.** *Journal of personality and social psychology*
Ward, G., De Neve, J., Ungar, L. H., Eichstaedt, J. C.
2020
- **Tracking Fluctuations in Psychological States Using Social Media Language: A Case Study of Weekly Emotion** *EUROPEAN JOURNAL OF PERSONALITY*
Eichstaedt, J. C., Weidman, A. C.
2020
- **The language of character strengths: Predicting morally valued traits on social media.** *Journal of personality*
Pang, D., Eichstaedt, J. C., Buffone, A., Slaff, B., Ruch, W., Ungar, L. H.
2020; 88 (2): 287-306
- **Cultural Differences in Tweeting about Drinking Across the US.** *International journal of environmental research and public health*
Giorgi, S., Yaden, D. B., Eichstaedt, J. C., Ashford, R. D., Buffone, A. E., Schwartz, H. A., Ungar, L. H., Curtis, B.
2020; 17 (4)
- **Estimating geographic subjective well-being from Twitter: A comparison of dictionary and data-driven language methods.** *Proceedings of the National Academy of Sciences of the United States of America*
Jaidka, K. n., Giorgi, S. n., Schwartz, H. A., Kern, M. L., Ungar, L. H., Eichstaedt, J. C.
2020
- **The Internet and Participation Inequality: A Multilevel Examination of 108 Countries** *INTERNATIONAL JOURNAL OF COMMUNICATION*
Ahmed, S., Cho, J., Jaidka, K., Eichstaedt, J. C., Ungar, L. H.
2020; 14: 1542-63
- **Evaluating the predictability of medical conditions from social media posts** *PLOS ONE*
Merchant, R. M., Asch, D. A., Crutchley, P., Ungar, L. H., Guntuku, S. C., Eichstaedt, J. C., Hill, S., Padrez, K., Smith, R. J., Schwartz, H.
2019; 14 (6): e0215476
- **Real-world unexpected outcomes predict city-level mood states and risk-taking behavior** *PLOS ONE*
Otto, A., Eichstaedt, J. C.
2018; 13 (11): e0206923
- **Facebook language predicts depression in medical records** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Eichstaedt, J. C., Smith, R. J., Merchant, R. M., Ungar, L. H., Crutchley, P., Preotiuc-Pietro, D., Asch, D. A., Schwartz, H.
2018; 115 (44): 11203-8
- **The Future of Technology in Positive Psychology: Methodological Advances in the Science of Well-Being.** *Frontiers in psychology*
Yaden, D. B., Eichstaedt, J. C., Medaglia, J. D.
2018; 9: 962

- **The Language of Religious Affiliation: Social, Emotional, and Cognitive Differences** *SOCIAL PSYCHOLOGICAL AND PERSONALITY SCIENCE*
Yaden, D. B., Eichstaedt, J. C., Kern, M. L., Smith, L. K., Buffone, A., Stillwell, D. J., Kosinski, M., Ungar, L. H., Seligman, M. P., Schwartz, H.
2018; 9 (4): 444–52
- **Detecting depression and mental illness on social media: an integrative review** *CURRENT OPINION IN BEHAVIORAL SCIENCES*
Guntuku, S., Yaden, D. B., Kern, M. L., Ungar, L. H., Eichstaedt, J. C.
2017; 18: 43–49
- **Of Roots and Fruits: A Comparison of Psychedelic and Nonpsychedelic Mystical Experiences** *JOURNAL OF HUMANISTIC PSYCHOLOGY*
Yaden, D. B., Le Nguyen, K. D., Kern, M. L., Belsler, A. B., Eichstaedt, J. C., Iwry, J., Smith, M. E., Wintering, N. A., Hood, R. W., Newberg, A. B.
2017; 57 (4): 338–53
- **Living in the Past, Present, and Future: Measuring Temporal Orientation With Language** *JOURNAL OF PERSONALITY*
Park, G., Schwartz, H. A., Sap, M., Kern, M. L., Weingarten, E., Eichstaedt, J. C., Berger, J., Stillwell, D. J., Kosinski, M., Ungar, L. H., Seligman, M. E.
2017; 85 (2): 270-280
- **Gaining insights from social media language: Methodologies and challenges.** *Psychological methods*
Kern, M. L., Park, G., Eichstaedt, J. C., Schwartz, H. A., Sap, M., Smith, L. K., Ungar, L. H.
2016; 21 (4): 507-525
- **The Language of Ineffability: Linguistic Analysis of Mystical Experiences** *PSYCHOLOGY OF RELIGION AND SPIRITUALITY*
Yaden, D. B., Eichstaedt, J. C., Schwartz, H., Kern, M. L., Le Nguyen, K. D., Wintering, N. A., Hood, R. W., Newberg, A. B.
2016; 8 (3): 244–52
- **Women are Warmer but No Less Assertive than Men: Gender and Language on Facebook.** *PloS one*
Park, G., Yaden, D. B., Schwartz, H. A., Kern, M. L., Eichstaedt, J. C., Kosinski, M., Stillwell, D., Ungar, L. H., Seligman, M. E.
2016; 11 (5): e0155885
- **PREDICTING INDIVIDUAL WELL-BEING THROUGH THE LANGUAGE OF SOCIAL MEDIA.** *Pacific Symposium on Biocomputing. Pacific Symposium on Biocomputing*
Schwartz, H. A., Sap, M., Kern, M. L., Eichstaedt, J. C., Kapelner, A., Agrawal, M., Blanco, E., Dziurzynski, L., Park, G., Stillwell, D., Kosinski, M., Seligman, M. E., Ungar, et al
2016; 21: 516-27
- **Living in the Past, Present, and Future: Measuring Temporal Orientation With Language.** *Journal of personality*
Park, G., Schwartz, H. A., Sap, M., Kern, M. L., Weingarten, E., Eichstaedt, J. C., Berger, J., Stillwell, D. J., Kosinski, M., Ungar, L. H., Seligman, M. E.
2015
- **The Mechanics of Human Achievement.** *Social and personality psychology compass*
Duckworth, A. L., Eichstaedt, J. C., Ungar, L. H.
2015; 9 (7): 359-369
- **Automatic personality assessment through social media language.** *Journal of personality and social psychology*
Park, G., Schwartz, H. A., Eichstaedt, J. C., Kern, M. L., Kosinski, M., Stillwell, D. J., Ungar, L. H., Seligman, M. E.
2015; 108 (6): 934-52
- **Psychological language on Twitter predicts county-level heart disease mortality.** *Psychological science*
Eichstaedt, J. C., Schwartz, H. A., Kern, M. L., Park, G., Labarthe, D. R., Merchant, R. M., Jha, S., Agrawal, M., Dziurzynski, L. A., Sap, M., Weeg, C., Larson, E. E., Ungar, et al
2015; 26 (2): 159-69
- **The online social self: an open vocabulary approach to personality.** *Assessment*
Kern, M. L., Eichstaedt, J. C., Schwartz, H. A., Dziurzynski, L., Ungar, L. H., Stillwell, D. J., Kosinski, M., Ramones, S. M., Seligman, M. E.
2014; 21 (2): 158-69
- **From "Sooo excited!!!!" to "So proud": using language to study development.** *Developmental psychology*
Kern, M. L., Eichstaedt, J. C., Schwartz, H. A., Park, G., Ungar, L. H., Stillwell, D. J., Kosinski, M., Dziurzynski, L., Seligman, M. E.
2014; 50 (1): 178-88
- **Personality, gender, and age in the language of social media: the open-vocabulary approach.** *PloS one*

Schwartz, H. A., Eichstaedt, J. C., Kern, M. L., Dziurzynski, L., Ramones, S. M., Agrawal, M., Shah, A., Kosinski, M., Stillwell, D., Seligman, M. E., Ungar, L. H.
2013; 8 (9): e73791