

## **Johannes C. Eichstaedt**

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### **EDUCATION**

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|--------------|--|
| Ph.D.        | Psychology, University of Pennsylvania, 2017   |
| M.A.         | Psychology, University of Pennsylvania, 2013   |
| M.A.P.P.     | Applied Positive Psychology, University of Pennsylvania, 2011  |
| M.S.         | Physics, University of Chicago, 2010   |
| B.S. (Hons.) | Physics & Philosophy, King's College London, 2009, <i>first class honors</i><br>Jelf Medal (highest distinction) |

### **APPOINTMENTS**

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| 2020 –      | Assistant Professor, Psychology<br>Junior Fellow in the Institute for Human-Centered Artificial Intelligence<br>Stanford University |
| 2018 – 2019 | Senior Research Associate, World Well-Being Project<br>Positive Psychology Center, University of Pennsylvania,                      |
| 2017 – 2018 | Postdoctoral Fellow, Department of Psychology, University of Pennsylvania   |
| 2011 – 2012 | Lead Research Scientist / Founder, World Well-Being Project<br>Positive Psychology Center, University of Pennsylvania,              |

### **GRANTS & FELLOWSHIPS**

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|-------------|--|
| 2017 – 2018 | Corporation for National and Community Service<br>(Principal Investigator, \$49,428) |
| 2014 – 2018 | Templeton Religion Trust (Investigator, \$3,835,702)                                 |
| 2012 – 2017 | Benjamin Franklin Fellowship, University of Pennsylvania (\$300,000)                 |
| 2012 – 2014 | Marshall Fund Fellowship, German National Academic Foundation (\$90,000)             |
| 2009 – 2010 | Tuition Scholarship for Study in Physics, University of Chicago (\$25,000)           |

## PUBLICATIONS

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Current h-index: 23

### Refereed Journal Articles

Jaidka, J., Giorgi, S., Schwartz, H. A., Kern, M. L., Ungar, L. H., **Eichstaedt, J. C.** (2020, in print). Estimating geographic subjective well-being from Twitter: a comparison of dictionary and data-driven language methods. *Proceedings of the National Academy of Sciences*.

**Eichstaedt, J. C.** & Weidman, A. (2020, in press) Tracking Fluctuations in Psychological States: A Case Study of Weekly Emotion Using Social Media Language. *European Journal of Personality*.

Ahmed, S., Cho, J., Jaidka, K., **Eichstaedt, J. C.**, & Ungar, L. (2020, in press). The Internet and Participation Inequality: A Multi-Level Examination of 111 Countries. *International Journal of Communication*.

Yaden, M. E., Yaden, D. B., Buffone, A. E. K., **Eichstaedt, J. C.**, Crutchley, P., Smith, L., Cass, J. L., Callahan, C. A., Rosenthal, S., R., Ungar, L. H., Schwartz, H. A., Hojat, M. (2020, in press) Linguistic Analysis of Empathy in Medical School Admission Essays. *International Journal of Medical Education*.

Giorgi, S., Yaden, D. B., Eichstaedt, J. C., Ashford, R. D., Buffone, A. E., Schwartz, H. A., ... & Curtis, B. (2020). Cultural Differences in Tweeting about Drinking Across the US. *International Journal of Environmental Research and Public Health*, 17(4), 1125.

Pang, D., **Eichstaedt, J. C.**, Buffone, A., Slaff, B., Ruch, W., & Ungar, L. H. (2019, in press). The Language of Character Strengths: Predicting Morally Valued Traits on Social Media. *Journal of Personality*.

Merchant, R. M., Asch, D. A., Crutchley, P., Ungar, L. H., Guntuku, S., **Eichstaedt, J. C.**, Hill, S., Padrez, K., Smith, R. J., & Schwartz, H. A. (2019, in press). Evaluating the predictability of medical conditions from social media posts. *PLoS One*.

Otto, A. R., & **Eichstaedt, J. C.** (2018). Real-world unexpected outcomes predict city-level mood states and risk-taking behavior. *PLoS One*, 13(11), e0206923.

**Eichstaedt, J. C.**<sup>1</sup>, Smith, R. J.<sup>1</sup>, Merchant, R. M., Ungar, L. H., Crutchley, P., Preotiuc-Pietro, D., Asch, D. A., & Schwartz, H. A. (2018) Facebook Language Predicts Depression as Recorded in Medical Records. *Proceedings of the National Academy of Sciences*, 115 (44) 11203-11208. (1Equal contribution.)

Yaden, D. B., **Eichstaedt, J. C.**, & Medaglia, J. D. (2018). The Future of Technology in Positive Psychology: Methodological Advances in the Science of Well-Being. *Frontiers in Psychology*, 9, 962.

Obschonka, M., Lee, N., Rodríguez-Pose, A., **Eichstaedt, J. C.**, & Ebert, T. (2018). Big Data, artificial intelligence and the geography of entrepreneurship in the United States. *Centre for Economic Policy Research (No. 12949)*.

**Eichstaedt, J. C.**, Schwartz, H. A., Giorgi, S., Kern, M. L., Park, G., Sap, M., Labarthe D.R., Larson, E. E., Seligman, M. E. P., & Ungar, L. H. (2018, March 15). More Evidence that Twitter Language Predicts Heart Disease: A Response and Replication. *PsyArXiv*.  
<https://doi.org/10.31234/osf.io/p75ku>

Yaden, D. B., **Eichstaedt, J. C.**, Kern, M. L., Smith, L. K., Buffone, A., Stillwell, D. J., Kosinski, M., Ungar, L.H., Seligman, M.E. & Schwartz, H. A. (2017). The Language of Religious Affiliation: Social, Emotional, and Cognitive Differences. *Social Psychological and Personality Science*, 9(4), 444-452.

Guntuku, S. C., Yaden, D. B., Kern, M. L., Ungar, L. H., & **Eichstaedt, J. C.\*** (2017). Detecting depression and mental illness on social media: an integrative review. *Current Opinion in Behavioral Sciences*, 18, 43-49. (\*Senior/Supervising author)

Yaden, D. B., Le Nguyen, K. D., Kern, M. L., Wintering, N. A., **Eichstaedt, J. C.**, Schwartz, H. A., Buffone, A.E., Smith, L.K., Waldman, M.R., Hood Jr, R.W., & Newberg, A. B. (2017). The noetic quality: A multimethod exploratory study. *Psychology of Consciousness: Theory, Research, and Practice*, 4(1), 54.

Yaden, D. B., Le Nguyen, K. D., Kern, M. L., Belser, A. B., **Eichstaedt, J. C.**, Iwry, J., Smith, M. E., Wintering, N. A., Hood, R. W., & Newberg, A. B. (2016). Of Roots and Fruits A Comparison of Psychedelic and Nonpsychedelic Mystical Experiences. *Journal of Humanistic Psychology*, 57(4), 338-353.

Yaden, D. B., Iwry, J., Slack, K. J., **Eichstaedt, J. C.**, Zhao, Y., Vaillant, G. E., & Newberg, A. B. (2016). The overview effect: Awe and self-transcendent experience in space flight. *Psychology of Consciousness: Theory, Research, and Practice*, 3(1), 1.

Kern, M. L., Park, G., **Eichstaedt, J. C.**, Schwartz, H. A., Sap, M., Smith, L. K., & Ungar, L. H. (2016). Gaining Insights From Social Media Language: Methodologies and Challenges. *Psychological Methods*, 21(4), 507.

Park, G., Yaden, D. B., Schwartz, H. A., Kern, M. L., **Eichstaedt, J. C.**, Kosinski, M., ... & Seligman, M. E. (2016). Women are Warmer but No Less Assertive than Men: Gender and Language on Facebook. *PloS ONE*, 11(5), e0155885.

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). Living in the Past, Present, and Future: Measuring Temporal Orientation with Language. *Journal of Personality*, 85(2), 270-280.

Yaden, D. B., **Eichstaedt, J. C.**, Schwartz, H. A., Kern, M. L., Le Nguyen, K., Wintering, N. A., Hood, R. W., Newberg, A. B. (2015). *The language of ineffability: Linguistic analysis of mystical experiences. Journal of Religion and Spirituality*, 8(3), 244.

Duckworth, A. L., **Eichstaedt, J. C.**, & Ungar, L. H. (2015), The Mechanics of Human Achievement. *Social and Personality Psychology Compass*, 9, 359–369.

**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, L. H., & Seligman, M. E. (2015) Psychological Language on Twitter Predicts County-Level Heart Disease Mortality. *Psychological Science*. 26(2), 159-169.

Park, G., Schwartz, H. A., **Eichstaedt, J. C.**, Kern, M. L., Kosinski, M., Stillwell, D. J., Ungar, L. H., & Seligman, M. E. P. (2014). Automatic personality assessment through social media language. *Journal of Personality and Social Psychology*, 108(6), 934.

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. P. (2014). The online social self: An open vocabulary approach to personality. *Assessment*, 21, 158-169.

Kern, M. L., **Eichstaedt, J. C.**, Schwartz, H. A., Park, G., Ungar, L. H., Stillwell, D. J., Kosinski, M., Dziurzynski, L., & Seligman, M. E. P. (2014). From “sooo excited!!!” to “so proud”: Using language to study development. *Developmental Psychology*, 50, 178-188

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. P., & Ungar, L. H. (2013). Personality, gender, and age in the language of social media: The open-vocabulary approach. *PloS ONE*, 8(9), e73791.

### **Refereed Conferences**

Guntuku, S. C., Buffone, A., Jaidka, K., **Eichstaedt, J.C.**, & Ungar, L. (2019, in press). Understanding and Measuring Psychological Stress using Social Media. In *AAAI Conference on Web and Social Media (ICWSM)*.

Guntuku, S. C., Preoțiu-Pietro, D., **Eichstaedt, J. C.** & Ungar, L. H. (2019, in press). What Twitter Profile and Posted Images Reveal about Depression and Anxiety. In *AAAI Conference on Web and Social Media (ICWSM)*.

Jaidka, K., Buffone, A., Giorgi, S., **Eichstaedt, J. C.**, Rouhizadeh, M., & Ungar, L. H. (2018). Modeling and visualizing locus of control with Facebook language. In *International AAAI Conference on Web and Social Media (ICWSM)*.

Schwartz, H. A., Giorgi, S., Sap, M., Crutchley, P., Ungar, L., & **Eichstaedt, J. C.** (2017). DLATK: Differential language analysis ToolKit. In *Conference on Empirical Methods in Natural Language Processing (EMNLP): System Demonstrations* (pp. 55-60).

Abdul-Mageed, M., Buffone, A., Peng, H., **Eichstaedt, J. C.**, & Ungar, L. H. (2017). Recognizing Pathogenic Empathy in Social Media. In *International AAAI Conference on Web and Social Media (ICWSM)*.

Smith, L.K., Giorgi, S., Solanki, R., **Eichstaedt, J. C.**, Schwartz, A. H., Abdul-Mageed, M., Buffone, A., & Ungar, L. H. (2016). Does 'well-being translate on Twitter?' In *Empirical Methods in Natural Language Processing (EMNLP)*.

Preotiuc-Pietro, D., Schwartz, H.A., Park, G., **Eichstaedt, J. C.**, Kern, M., Ungar, L., Shulman, E.P. (2016). Modelling Valence and Arousal in Facebook Posts. In the *Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis (WASSA)*, in North American Chapter of the Association for Computational Linguistics (NAACL).

Schwartz, H. A., Sap, M., Kern, M. L., **Eichstaedt, J. C.**, Kapelner, A., Agrawal, M., Blanco, E., Dziurzynski, L., Park, G., Stillwell, D., Kosinski, D., Seligman, M.E.P., Ungar, L.H. (2016). Predicting Individual Well-Being Through the Language of Social Media. In *Pacific Symposium on Biocomputing* 21:516-527.

Schwartz, A. H., Park, G., Sap, M., Weingarten, E., **Eichstaedt, J.C.**, Kern, M., Stillwell, D., Kosinski, M., Berger, J., Seligman, M., & Ungar, L. (2015). Extracting Human Temporal Orientation from Facebook Language. In *North American Chapter of the Association for Computational Linguistics (NAACL)*.

Preotiuc-Pietro, D., **Eichstaedt, J.C.**, Park, G., Sap, M., Smith, L., Tobolsky, V., Schwartz, H. A., & Ungar, L. H. (2015). The Role of Personality, Age and Gender in Tweeting about Mental Illnesses. In *Workshop on Computational Linguistics and Clinical Psychology (CLPsych): From Linguistic Signal to Clinical Reality*, in North American Chapter of the Association for Computational Linguistics (NAACL).

Sap, M., Park, G., **Eichstaedt, J. C.**, Kern, M. L., Stillwell, D. J., Kosinski, M., Ungar, L. H., & Schwartz, H. A. (2014). Developing age and gender predictive lexica over social media. In *Conference on Empirical Methods in Natural Language Processing (EMNLP)*.

Schwartz, H. A., **Eichstaedt, J. C.**, Kern, M. L., Park, G., Sap, M., Stillwell, D., Kosinski, M., Ungar, L. H. (2014). Towards Assessing Changes in Degree of Depression through Facebook. In *Workshop on Computational Linguistics and Clinical Psychology (CLPsych)*, 118, in North American Chapter of the Association for Computational Linguistics (NAACL).

Schwartz, H. A.<sup>1</sup>, **Eichstaedt, J. C.**<sup>1</sup>, Kern, M. L., Dziurzynski, L., Lucas, R. E., Agrawal, M., Park, G. J., Lakshmikanth, S. K., Jha, S., Seligman, M. E. P., & Ungar, L. H. (2013). Characterizing Geographic Variation in Well-Being using Tweets. In *Seventh International AAAI Conference on Weblogs and Social Media (ICWSM)*. (<sup>1</sup>Equal contribution.)

Schwartz, H. A., **Eichstaedt, J. C.**, Dziurzynski, L., Kern, M. L., Blanco, E., Kosinski, M., Stillwell, D., Seligman, M. E. P., & Ungar, L. H. (2013). Toward Personality Insights from Language Exploration in Social Media. In *AAAI Spring Symposium Series*.

Schwartz, H. A., **Eichstaedt, J. C.**, Dziurzynski, L., Kern, M. L., Blanco, E., Ramones, S., Seligman, M. E. P., & Ungar, L. H. (2013). Choosing the Right Words: Characterizing and Reducing Error of the Word Count Approach. In *\*SEM-2013: Second Joint Conference on Lexical and Computational Semantics*.

### **Other Publications**

**Eichstaedt, J.C.** (2016). Using Social Media to Assess Health from Afar. *Scientific American Mind*, 27(2): 62-67.

**Eichstaedt, J. C.** (2015). Big Data and the World of Social Media: Lessons Learned at the Intersection of Computer and Psychological Sciences. *APS Observer*.

### **INVITED TALKS**

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**Eichstaedt, J. C.** (2018, October). *The Science of Well-Being*. In The Geography of Happiness symposium. National Geographic, Washington, DC.

**Eichstaedt, J. C.** (2017, July). *Measuring Well-Being through Big Data*. In Founders Symposium. Invited talk at Fifth World Congress on Positive Psychology, International Positive Psychology Association, Montreal, Canada.

**Eichstaedt, J. C.** (2017, March) *Big Data Psychology: Measuring Health and Well-Being through Social Media*. Invited talk at the Knowledge & Human Development Authority, Dubai, UAE.

**Eichstaedt, J. C.** (2016, July). *Big Data Psychology*. Invited talk presented at the NOVUS Innovation Summit, United Nations General Assembly, New York City, NY.

**Eichstaedt, J.C.** (2016, February). **Eichstaedt, J. C.** (2015, June). *Measuring Psychological States Through Social Media*. Invited talk presented at the Presidential Symposium at the 17th annual meeting of the Society of Personality and Social Psychology, San Diego, CA.

**Eichstaedt, J. C.** (2016, February). *Measuring the Health and Well-being of Populations through Social Media*. Invited talk presented at the 3rd Annual Power of Collaboration Global Summit at the United Nations, New York, NY.

**Eichstaedt, J. C.** (2016, February). *Calibrating Social Media Measurement to Augment Official Datasets*. Invited talk present at Instituto Nacional de Estadística y Geografía (INEGI), Aguascalientes, Mexico.

**Eichstaedt, J. C.** (2016, February). *Using Twitter and Facebook to Measure the Health and Well-being of Large Populations*. Invited talk presented at the Inter-American Development Bank (IDB), Washington, DC.

**Eichstaedt, J. C.** (2015, October). *The Promise of Big Data from Social Media to Measure the Well-being of Populations*. Invited talk presented at the 5th. OECD World Forum on Statistics, Knowledge and Policy. Organisation for Economic Co-operation and Development, Guadalajara, Mexico.

**Eichstaedt, J. C.** (2015, September). *Behaving Digitally*. Invited talk presented at the International Behavioural Insights Conference 2015, London, England.

**Eichstaedt, J. C.** (2015, June). *Measuring Psychological States Through Social Media*. Invited talk presented at the Alfred Krupp Institute for Advanced Studies in Greifswald, Germany.

Schwartz, H. A., **Eichstaedt, J. C.** (2014, June). *Statistical Information in the Data of the Web: Using Big Data to Measure Subjective Well-Being*. Invited talk presented at the Sessions on Big Data at the Instituto Nacional de Estadística y Geografía (INEGI), Mexico City, Mexico.

**Eichstaedt, J.C.** (2014, April). *Measuring the Collective Mind through Facebook*. Invited talk presented at the West Philadelphia Science Showcase, Philadelphia Science Festival, Philadelphia, PA.

**Eichstaedt, J.C.** (2014, February). *Measuring the Well-Being of Entire Nations Through Social Media*. Invited talk presented at the Wellbeing Sessions, South Australian Health and Medical Research Institute (SAHMRI), Adelaide, South Australia.

## AWARDS & HONORS

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| 2016 | Scientist of the Year, Philadelphia Geek Awards  |
| 2015 | Dean's Scholar, University of Pennsylvania   |
| 2013 | Emerging Leader in Science & Society<br>American Association for the Advancement of Science (AAAS) |
| 2009 | Elected as Associate of King's College, London   |

## SELECTED MEDIA COVERAGE

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| 2019 | The New York Times. <i>'Screen Time' Is Over</i>   |
| 2018 | WIRED. <i>Your Facebook Posts Can Reveal If You're Depressed.</i>                          |
| 2018 | Der Spiegel. <i>Facebook-Postings können auf Depressionen hinweisen.</i>                   |
| 2016 | The New York Times. <i>Women From Venus, Men Still From Mars on Facebook, Study Finds.</i> |

Johannes Eichstaedt

- 2015 Washington Post. *Tweets can better predict heart disease rates than income, smoking and diabetes, study finds.*
- 2015 The New Yorker. *What Your Tweets Say About You.*
- 2015 Fast Company. *Study: Twitter can help predict chances of coronary heart disease.*

**PROFESSIONAL EXPERIENCE**

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- 2017 – Chief Science Officer, Stitched Insights, LLC. (NLP for product insight)
- 2016 – Board of Advisors, Ransomly, LLC. (Digital well-being app)
- 2016 – 2019 Technology Advisor, Keriton, LLC. (Networked medical devices)
- 2016 Senior Scientific Advisor, Heads Together, The Royal Foundation, UK. (Digital mental health care delivery)
- 2015 – 2016 Chief Science Officer, Emodt, LLC. (Well-being tracking through NLP)