

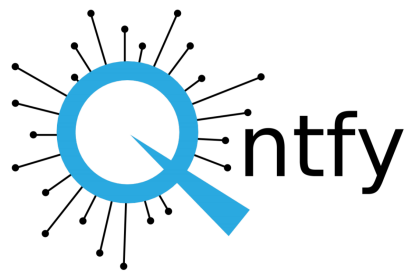
CLPsych 2017

**The Fourth Workshop on
Computational Linguistics and Clinical Psychology —
From Linguistic Signal to Clinical Reality**

Proceedings of the Workshop

August 3, 2017
Vancouver, Canada

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Introduction

In the United States, mental and neurological health problems are among the costliest challenges we face. Depression, Alzheimer’s disease, bipolar disorder, and attention deficit hyperactivity disorder (ADHD) are only a handful of the many illnesses that contribute to this cost. The global cost of mental health conditions alone was estimated at \$2.5 trillion in 2010, with a projected increase to over \$6 trillion in 2030. Neurological illnesses and mental disorders cost the U.S. more than \$760 billion a year. The World Health Organization (WHO) estimates one out of four people worldwide will suffer from a mental illness at some point in their lives, while one in five Americans experience a mental health problem in any given year. Mental, neurological, and substance use disorders are the leading cause of disability worldwide, yet most public service announcements and government education programs remain focused on physical health issues such as cancer screening, influenza vaccines, and obesity. Despite the substantial and rising burden of such disorders, there is a significant shortage of resources available to prevent, diagnose, and treat them; thus technology must be brought to bear—in particular, language technology.

For clinical psychologists, language plays a central role in diagnosis, and many clinical instruments fundamentally rely on manual coding of patient language. Applying language technology in the domain of mental and neurological health could lead to inexpensive screening measures that may be administered by a wider array of healthcare professionals. Researchers had begun targeting such issues prior to this workshop series, using language technology to identify emotion in suicide notes, analyze the language of those with autistic spectrum disorders, and aid the diagnosis of dementia.

The series of Computational Linguistics and Clinical Psychology (CLPsych) workshops began at ACL 2014 with lively discussions about the advantages and disadvantages of diagnostic language tools and language-based interventions. NAACL 2015 and 2016 hosted the second and third such workshop with a near-doubling of attendance. The 2015 workshop also hosted the first CLPsych Shared Task, and the 2016 Shared Task saw a near-quadrupling of participants, with 15 submissions aiming to identify forum posts requiring immediate moderator attention an online peer-support forum hosted by ReachOut.com. The CLPsych workshops diverge from the conventional “mini-conference” workshop format by inviting clinical psychologists and researchers to join us at the workshop as discussants, to provide real-world points of view on the potential applications of NLP technologies presented during the workshop. We hope to continue building the momentum towards releasing tools and data that can be used by clinical psychologists, and as such, the ability to communicate relevant computational methods and results clearly, connecting the work to clinical practice, is as important as the quality of the work itself, and more important than research novelty.

ACL 2017 hosts the fourth CLPsych workshop, with another shared task. Published papers in this proceedings propose methods for automatically detecting and explaining psychological crisis, assessing depression and anxiety, analyzing language of murderers and dreams, and tracking affect patterns in social media of mental illness and suicide groups. The 2017 CLPsych Shared Task once again centered on the classification of posts from a mental health forum to assist forum moderators in triaging and escalating posts requiring immediate attention. We received 21 submissions for the workshop, 8 of which were abstracts submitted for the new non-archival track. Of the workshop submissions, 16 (76%) were accepted: 4 for oral presentation, 4 for a new ‘mini oral’ presentation format, and 6 for poster presentation; 2 were withdrawn. Oral presentations will be followed by discussions led by several experts on working in the fields of behavioral and mental health and with clinical data: Dr. Rebecca Resnik and Dr. Andrew Littlefield.

We wish to thank everyone who showed interest and submitted a paper, all of the authors for their contributions, the members of the Program Committee for their thoughtful reviews, our clinical discussants for their helpful insights, and all the attendees of the workshop. We also wish to extend thanks to the Association for Computational Linguistics for making this workshop possible, and to Microsoft Research, Qntfy, and RealComm Global for their generous sponsorships.

– Kristy, Molly, and Kate

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Conference Program

Thursday August 3, 2017

9:00–9:20 Opening Remarks

Chairs: Kristy Hollingshead, Molly E. Ireland and Kate Loveys

9:20–10:30 Session: Oral Presentations 1

A Cross-modal Review of Indicators for Depression Detection Systems

Michelle Morales, Stefan Scherer and Rivka Levitan

In Your Wildest Dreams: The Language and Psychological Features of Dreams

Kate Niederhoffer, Jonathan Schler, Patrick Crutchley, Kate Loveys and Glen Coppersmith

11:00–12:15 Session: Poster Presentations

A Corpus Analysis of Social Connections and Social Isolation in Adolescents Suffering from Depressive Disorders

Jia-Wen Guo, Danielle L Mowery, Djin Lai, Katherine Sward and Mike Conway

Monitoring Tweets for Depression to Detect At-Risk Users

Zunaira Jamil, Diana Inkpen, Prasadith Buddhitha and Kenton White

Examining Sentiment and Depression in Survivors of Intimate Partner Violence.

Joseph Costello, Catherine Kothari, Duncan Vos, Richard Brandt and Angie Moe

Ethical Challenges in Algorithmic Inference of Mental Illness with Large-Scale Social Data

Stevie Chancellor, Vincent Silenzio, Eric Caine and Munmun De Choudhury

Validation of Twitter Self-Styled Models of Mental Health against Patient Medical Records

Glen Coppersmith, Patrick Crutchley, Raina M. Merchant and H. Andrew Schwartz

Language Style Matching in Subclinically Depressed and Anxious Participants' Responses to Social Media-Style Posts

Taleen Nalabandian and Molly Ireland

Thursday August 3, 2017 (continued)

1:45–2:30 Session: Mini-Oral Presentations

Investigating Patient Attitudes Towards the use of Social Media Data to Augment Depression Diagnosis and Treatment: a Qualitative Study

Jude Mikal, Samantha Hurst and Mike Conway

Natural-language Interactive Narratives in Imaginal Exposure Therapy for Obsessive-Compulsive Disorder

Melissa Roemmele, Paola Mardo and Andrew Gordon

Detecting Anxiety through Reddit

Judy Hanwen Shen and Frank Rudzicz

Detecting and Explaining Crisis

Rohan Kshirsagar, Robert Morris and Samuel Bowman

2:30–3:30 Session: Oral Presentations 2

A Dictionary-Based Comparison of Autobiographies by People and Murderous Monsters

Micah Iserman and Molly Ireland

Small but Mighty: Affective Micropatterns for Quantifying Mental Health from Social Media Language

Kate Loveys, Patrick Crutchley, Emily Wyatt and Glen Coppersmith

4:00–5:00 CLPsych2017 Shared Task: Results & Open Discussion

Chair: David Milne

5:00–5:30 Closing Remarks