SINDHU KIRANMAI ERNALA

CONTACT
School of Interactive Computing
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RESEARCH INTERESTS
I am broadly interested in Computational Social Science, applying methods from machine learning, statistical modeling, and natural language processing to questions around health and well-being. My research aims to understand the role of social media as a mental health intervention platform.

EDUCATION

Doctor of Philosophy, Computer Science   2016 - present
Georgia Institute of Technology
Advisor : Munmun De Choudhury

Bachelor of Technology, Computer Science   2011 - 2016
with Master of Science, Exact Humanities
International Institute of Information Technology Hyderabad, India
Thesis title : Towards Construction of Social Automaton

PUBLICATIONS

Refereed Conference Proceedings

[1] **Ernala, S. K.**, Birnbaum, M., Candan, K., Rizvi, A., Sterling, W., Kane, J., & De Choudhury, M. (2018). Methodological Gaps in Predicting Mental Health States from Social Media : Triangulating Diagnostic Signals. Accepted at the 2019 CHI Conference on Human Factors in Computing Systems (CHI).

[2] **Ernala, S. K.**, Labetoulle, T., Bane, F., Birnbaum, M., Rizvi, A., Kane, J., & De Choudhury, M. (2018). Characterizing Audience Engagement and Assessing its Impact on Social Media Disclosures of Mental Illnesses. In Proceedings of the 12th International AAAI Conference on Web and Social Media. ICWSM 2018.

[3] **Ernala, S. K.**, Rizvi, A., Birnbaum, M., Kane, J., & De Choudhury, M. (2018). Linguistic Markers Indicating Therapeutic Outcomes of Social Media Disclosures of Schizophrenia. In Proceedings of the 21st ACM Conference on Computer-Supported Cooperative Work and Social Computing. CSCW 2018 Online First.

[4] Sharma, E., Saha, K., **Ernala, S. K.**, Ghoshal, S., & De Choudhury, M. (2017). Analyzing Ideological Discourse on Social Media : A Case Study of the Abortion Debate. In Proceedings of the CSSA's Annual Conference on Computational Social Science. CSS 2017.

[5] Banerjee, J., Raravi, G., Gupta, M., **Ernala, S. K.**, Kunde, S., & Dasgupta, K. (2016). CAPReS : Context Aware Persona Based Recommendation for Shoppers. In AAAI Conference on Artificial Intelligence. AAAI 2016.

Refereed Journal Articles

[1] Saha, K., Torous, J., **Ernala, S. K.**, Rizuto, C., Stafford, A., & De Choudhury, M. (2019). A Computational Study of Mental Health Awareness Campaigns on Social Media. In Translational Behavioral Medicine.

[2] Birnbaum, M., **Ernala, S. K.**, Rizvi, A., De Choudhury, M. & Kane, J. (2017). A Collaborative Approach to Identifying Social Media Markers of Schizophrenia by Employing Machine Learning and Clinical Appraisals. In Journal of Medical Internet Research (JMIR).

Refereed Workshop Papers

[1] Sapienza, A., **Ernala, S. K.**, Bessi, A., Lerman, K., & Ferrara, E. (2018). DISCOVER : Mining Online Chatter for Emerging Cyber Threats. In Proceedings of the 3rd Workshop on Computational Methods in CyberSafety, Online Harassment and Misinformation at WWW 2018.

[2] Poddar, S., **Ernala, S. K.**, & Singh, N. (2016). PACMAN : Psycho and Computational Framework of an Individual. In Proceedings of the Workshop on Emotion and Sentiment Analysis at the 10th International Conference on Language Resources and Evaluation (LREC).

[3] Poddar, S., **Ernala, S. K.**, Singh, N., & Samvara, A. (2016). Towards a Ubiquitous Model of an Individual in Social Machines. In Proceedings of the 25th International Conference Companion on World Wide Web. WWW 2016.

[4] Asooja, K., **Ernala, S. K.**, & Buitelaar, P. (2015). UNLP at the MediaEval 2015 C@merata Task. In MediaEval 2015.

[5] Asooja, K., **Ernala, S. K.**, & Buitelaar, P. (2014). UNLP at the MediaEval 2014 C@merata Task. In MediaEval 2014.

Refereed Presentations/Abstracts

[1] **Ernala, S. K.**, Rizvi, A., Birnbaum, M., Kane, J., & De Choudhury, M. (2018). Using Social Media to Identify Risk Markers and Predict Relapse in Schizophrenia. Presented at Social Media and Health Workshop at the International Conference on Web and Social Media. ICWSM 2018

[2] Birnbaum, M., De Choudhury, M., Rizvi, A., **Ernala, S. K.**, Cecchi, G., & Kane, J. (2018). Identifying Psychotic Symptoms and Predicting Relapse through Social Media Data. In International Conference on Early Intervention in Mental Health. IEPA 2018.

[3] Birnbaum, M., De Choudhury, M., Rizvi, A., **Ernala, S. K.**, & Kane, J. (2018). Identifying Psychotic Symptoms and Predicting Relapse through Social Media Data. In Fourth Meeting on Patient Reported Outcomes and Person Centered Care in Mental Health - Symptoms of Mental Disorders : New Research, Treatments, Digital Health, American Association for the Advancement of Science. AAAS.

[4] Birnbaum, M., Rizvi, A., De Choudhury, M., **Ernala, S. K.**, Cecchi, G., & Kane, J. (2018). Identifying Psychotic Symptoms and Predicting Relapse Through Social Media. Schizophrenia Bulletin, 44(Suppl 1), S100.

PATENTS

[1] Raravi, G., Kunde, S., Eswaran, S., Chander, D., Rangaswamy, N., Banarjee, J., Ernala, S. K., Radhakrishnan, M., & Sharma, P. Systems and methods for enhancing shopping experience in physical stores

[2] Banarjee, J., Raravi, G., Gupta, M., Ernala, S. K., Kunde, S., & Dasgupta, K. Method and system for data processing to recommend list of physical stores in real-time

EXPERIENCE

Graduate Research Assistant — *August 2016 - present*
Social Dynamics and Well-being Lab, Georgia Institute of Technology
- Using statistical machine learning, time-series analysis and natural language processing methods to examine the role of social media as a mental health intervention platform
- Developing computational methods combining social media, search and health data to inform psychiatric interventions through early identification of risk markers and predicting adverse outcomes such as a relapse episodes
- Using quantitative methods to understand how social media facilitates behaviors around stigmatizing mental health challenges through self-disclosure, social support and social capital

Core Data Science Intern   *May 2019 - August 2019*
Facebook Inc., Menlo Park

Research Intern   *May 2017 - August 2017*
Machine Intelligence and Data Science Group, Information Science Institute, USC
- Designed and developed an early warning system for cyber-threats, that leverages online chatter from multiple data streams such as social media, security blogs, and darkweb forums, to identify novel vocabulary that signals potential cyber attacks

Research Intern   *May 2015 - August 2015*
Distributed and Mobile Computing Group, Xerox Research Center India
- Worked on modeling and predicting shopping persona of customers in physical retail based on their purchasing behavior and demographic information
- Applied feature selection and incremental feature learning techniques to capture temporal changes in shopping persona
- Developed a novel similarity scoring technique between shopping items in retail inventory and customer persona, for personalized recommendation

Visiting Student Researcher   *May 2014 - July 2014*
Unit for Natural Language Processing, Insight Center for Data Analytics, Ireland
- Worked on Content Analysis for Recommender systems, a project on multi-source personalization for e-commerce using customer reviews and Linked Open Data
- Implemented and evaluated a topic ranking algorithm for multiple data sources
- Developed data visualizations using D3.js for trend analysis of topics in book genres

Software Developer Intern   *May 2013 - July 2013*
Imaginate Software Labs
- Worked on server-side web application logic and integration to front-end

Teaching Assistant   *July 2013 - May 2015*
International Institute of Information Technology
- Worked as a Teaching Assistant for Information Technology Workshop and Introduction to Databases at IIIT-Hyderabad. Responsibilities included guiding student projects, lecturing, grading and assessment

TALKS & DEMOS
- Mining online chatter for emerging cyber threats, Cybersecurity Lecture series, Georgia Tech.
- THRIVE : Technology and Health Related Information to improve wellness, GVU Fall Research Showcase, Georgia Tech.
- DISCOVER : Generating early warning of cyber threats from online discussions. AI Seminar, Information Sciences Institute, University of Southern California.
- Examining linguistic markers leading to and following social media disclosures of schizophrenia, GVU Fall Research Showcase, Georgia Tech.

SERVICE & SKILLS

Reviewing : ICWSM, CSCW, CHI, ECIS, JMIR, ToCHI

Programming : Python, R, C++, Java, C, SQL, Bash, Presto, Javascript

Libraries/Tools scikit-learn, statsmodels, pandas, CoreNLP, NLTK, NetworkX, Elastic Search

AWARDS & HONORS
- Accepted to attend the Computing Resesarch Association (CRA-W) Grad Cohort for Women program (2019)
- Dean's Merit List (top 5% of the class) for Academic Excellence for 2014, 2015 at IIIT-H
- Commendation award for contributions to all round activities and leadership at IIIT-H