

SINDHU KIRANMAI ERNALA

CONTACT School of Interactive Computing
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RESEARCH INTERESTS I am broadly interested in Computational Social Science, Machine Learning, Statistical Modeling, and Natural Language Processing in relation 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.**, 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.
- [2] **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.
- [3] 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.
- [4] 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] 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 (Man). 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

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

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 to examine whether behaviors on social media in clinical populations can be used 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

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 for a virtual reality product, Dressy.

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

- Ernala, S. K., Rizvi, A., Birnbaum, M., Kane, J., & De Choudhury, M. (2017). THRIVE : Technology and Health Related Information to improve wellness, GVU Fall Research Showcase, Georgia Institute of Technology.
- Ernala, S. K. (2017). DISCOVER : Generating early warning of cyber threats from online discussions. AI Seminar, Information Sciences Institute, University of Southern California.
- Ernala, S. K., Rizvi, A., Birnbaum, M., Kane, J., & De Choudhury (2016). Examining linguistic markers leading to and following social media disclosures of schizophrenia, GVU Fall Research Showcase, Georgia Institute of Technology.

SERVICE & SKILLS

Reviewing : JMIR, CSCW, CHI, ECIS

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

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

AWARDS & HONORS

- 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