

# SINDHU KIRANMAI ERNALA

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CONTACT E1566M, CODA Tech Square  
756 W Peachtree St NW  
Atlanta, GA 30308

Email: [sernala3@gatech.edu](mailto:sernala3@gatech.edu)  
Web: [www.sindhuernala.com](http://www.sindhuernala.com)

RESEARCH INTERESTS Applying machine learning, statistical modeling, and natural language processing methods to digital trace data, to understand how social technologies affect and improve people's health and well-being. Areas: Computational social science, human-centered machine learning, human computer interaction.

EDUCATION **Doctor of Philosophy, Computer Science** 2016 - present  
Georgia Institute of Technology  
Dissertation title: *Person-centered pathways to care: A computational examination of social media for mental health*  
Advisor: Munmun De Choudhury  
Committee: Eric P.S. Baumer, Moira Burke, Elizabeth Mynatt, Diyi Yang  
Ph.D. minor area: Public policy

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

AWARDS & HONORS

- Facebook Ph.D. Fellowship Finalist (2020)
- Georgia Tech GVU Foley Scholar Finalist (2020)
- Computing Research Association (CRA-W) Grad Cohort for Women Attendee (2019)
- Special recognition for outstanding reviews, CHI (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

EXPERIENCE **Graduate Research Assistant, Georgia Tech** August 2016 - present  
(with Munmun De Choudhury)

**Research Intern, Core Data Science, Facebook** May 2020 - August 2020  
(with Moira Burke)

**External Research Collaborator** August 2019 - May 2020  
*Pro Unlimited @ Facebook Inc.*

**Core Data Science Intern, Facebook** May 2019 - August 2019  
(with Moira Burke)

**Research Intern, Information Science Institute, USC** May 2017 - August 2017  
(with Emilio Ferrara)

**Research Intern, Xerox Research Center India** May 2015 - August 2015  
(in the Distributed and mobile computing group)

**Visiting Student Researcher, Insight Center for Data Analytics** *May 2014 - July 2014*  
(with Paul Buitelaar)

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

PUBLICATIONS **Refereed Journal Articles**

**Ernala, S. K.**, Kashiparekh, K., Bolous, A., Ali, A., Kane, J., Birnbaum, M., De Choudhury, M.. (2020). A Social Media Study on Mental Health Status Transitions Surrounding Psychiatric Hospitalizations. In **PACM CSCW**.

Birnbaum, M., Wen, H., Van Meter, A., **Ernala, S. K.**, Rizvi, A. F., Arenare, E., Estrin, D., De Choudhury, M., Kane, J. (2020). Identifying Emerging Mental Illness Utilizing Search Engine Activity: A Feasibility Study. In **PLOS ONE**.

Birnbaum, M.\*, **Ernala, S. K.\***, Rizvi, A. F., Arenare, E., Van Meter, A., De Choudhury, M., Kane, J. (2019). Detecting Relapse in Youth with Psychotic Disorders Utilizing Patient-Generated and Patient-Contributed Digital Data from Facebook. In **Nature Partner Journal Schizophrenia. npj Schizophrenia**. (*\* co-first authors*)

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**.

**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. **PACM CSCW 2018 Online First**.

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)**. (*\* equal contribution*)

**Refereed Conference Proceedings**

**Ernala, S. K.**, Burke, M., Leavitt, A., Ellison, N.B. (2020). How Well Do People Report Time Spent on Facebook? An Evaluation of Established Survey Questions with Recommendations. In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems. **CHI 2020**.

Saha, K., **Ernala, S. K.**, Dutta, S., Sharma, E., De Choudhury, M. (2019). Understanding Moderation in Online Mental Health Communities. In 22nd International Conference on Human-Computer Interaction. **HCI 2020**.

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

**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**.

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**.

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 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. (*\* equal contribution*)

[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). (*\* co-first authors*)

[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. (*\* co-first authors*)

[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.

### Workshops Organized

[1] Technology Ecosystems: Rethinking Resources for Mental Health. Held at CHI Conference on Human Factors in Computing Systems. CHI 2020.

### Other Academic Publications

- [1] Burgess, E., Zhang, R., Ernala, S.K., Feuston, J., De Choudhury, M., Schueller, S., Aguilera, A., Czerwinski, M., Reddy, M. (2021). Technology Ecosystems. Rethinking Resources for Mental Health. Interactions Magazine. Forthcoming.

## 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, US Patent 10,430,860 (2019)  
[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, US Patent App. 15/267,467 (2018).

## INVITED TALKS, PANELS & DEMOS

- CS + Social Good Research Panel. Georgia Tech 2019.
- *How well do people report time spent on Facebook?* CDS tech talk. Facebook, Inc. 2019.
- *Mining online chatter for emerging cyber threats.* Cybersecurity lecture series, Georgia Tech. 2019.
- *Intersection of social and clinical pathways to care for mental illnesses through social media.* ITU Kaleidoscope Conference, Georgia Tech. 2019.
- *Intersection of social and clinical pathways to care for mental illnesses through social media.* GVU Fall Research Showcase, Georgia Tech. 2019.
- *THRIVE: Technology and Health Related Information to Improve Wellness* GVU Fall Research Showcase, Georgia Tech. 2018.
- *DISCOVER: Generating early warning of cyber threats from online discussions.* AI Seminar, Information Sciences Institute, University of Southern California. 2018.
- *Examining linguistic markers leading to and following social media disclosures of schizophrenia.* GVU Fall Research Showcase, Georgia Tech. 2017.
- *Examining behavioral markers leading to social media disclosures on schizophrenia.* GVU Fall Research Showcase, Georgia Tech. 2016.

## SELECTED PRESS

- [Facebook Research Blog](#). Recommendations for researchers to more accurately measure time spent on Facebook. (August, 2020)  
[TechCrunch](#). Facebook users are pretty bad at telling how much time they spend on it. (August, 2020)

## SERVICE & SKILLS

**PC Member:** WNUT at EMNLP (2019), The Web Conference (2020, 2021), CHI Late Breaking Work (2020), ICWSM (2019, 2020), ACM WebSci (2020).

### Reviewing :

**Journals** Nature Partner Journal (npj) Digital Medicine, PACM CSCW (2018, 2019, 2020), J. Medical Internet Research (JMIR), ACM Transactions on Computer-Human Interaction, ACM Transactions on Computing for Healthcare, IEEE Transactions on Affective Computing, Early Intervention in Psychiatry.

**Conferences** ICWSM (2019, 2020), CHI (2019\*, 2020), ECIS (2018), The Web Conference (2020, 2021). [\**Special Recognitions for Outstanding Reviews*]

### Mentoring:

Jordyn Seybolt, BS-Psychology  
Kathan Kashiparekh, MS-CS  
Amir Girgis, BS-CS  
Stephanie Yang, BS-CS  
Tristan Labetoulle, MS-CS  
Fred Bane, MS-HCI

**Other professional activities/service:**

Member, Grad Women @ College of Computing. 2018-2019.

Mentor, I.AM.Grad Computing Workshop in Atlanta. 2019.

Co-organizer, Computational Social Science with Care bi-weekly reading group with inter-university graduate students.

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