













prosodic features will be able to drive richer models of interaction dynamics.

## ACKNOWLEDGEMENTS

We would like to thank the Child Forensic Interviewing Lab at the Gould School of Law for their efforts in collecting and sharing their data on FI with us.

## REFERENCES

- [1] Elizabeth C Ahern, Samantha J Andrews, Stacia N Stolzenberg, and Thomas D Lyon. [n. d.]. The productivity of wh-prompts in child forensic interviews. *Journal of interpersonal violence* (n. d.), 0886260515621084.
- [2] Elizabeth C Ahern, Stacia N Stolzenberg, and Thomas D Lyon. 2015. Do prosecutors use interview instructions or build rapport with child witnesses? *Behavioral sciences & the law* 33, 4 (2015), 476–492.
- [3] V. Ardulov, M. Kumar, S. Williams, T. Lyon, and S. Narayanan. 2018. Measuring Conversational Productivity in Child Forensic Interviews. *ArXiv e-prints* (June 2018). arXiv:cs.CL/1806.03357
- [4] Lucy Berliner and Jon R Conte. 1995. The effects of disclosure and intervention on sexually abused children. *Child abuse & neglect* 19, 3 (1995), 371–384.
- [5] Paul Boersma. 2006. Praat: doing phonetics by computer. <http://www.praat.org/> (2006).
- [6] Michael S Brady, Debra A Poole, Amye R Warren, and Heather R Jones. 1999. Young children's responses to yes-no questions: Patterns and problems. *Applied Developmental Science* 3, 1 (1999), 47–57.
- [7] Rafael Calvo, Sidney D'Mello, Jonathan Gratch, Arvid Kappas, Chi-Chun Lee, Jangwon Kim, Angeliki Metallinou, Carlos Busso, Sungbok Lee, and Shrikanth S. Narayanan. 2015. Speech in Affective Computing. *The Oxford Handbook of Affective Computing* August 2018 (2015), 1–23. <https://doi.org/10.1093/oxfordhb/9780199942237.013.021>
- [8] Roger Collins, Robyn Lincoln, and Mark G Frank. 2002. The effect of rapport in forensic interviewing. *Psychiatry, psychology and law* 9, 1 (2002), 69–78.
- [9] Lindsay E. Cronch, Jodi L. Viljoen, and David J. Hansen. 2006. Forensic interviewing in child sexual abuse cases: Current techniques and future directions. *Aggression and Violent Behavior* 11, 3 (2006), 195–207. <https://doi.org/10.1016/j.avb.2005.07.009>
- [10] David M Fergusson, L John Horwood, and Michael T Lynskey. 1996. Childhood sexual abuse and psychiatric disorder in young adulthood: II. Psychiatric outcomes of childhood sexual abuse. *Journal of the American Academy of Child & Adolescent Psychiatry* 35, 10 (1996), 1365–1374.
- [11] James Gibson, Nikolaos Malandrakis, Francisco Romero, David C. Atkins, and Shrikanth S. Narayanan. 2015. Predicting therapist empathy in motivational interviews using language features inspired by psycholinguistic norms. In *Proc. Interspeech, Dresden, Germany*. 1947–1951.
- [12] Tanja Hillberg, Catherine Hamilton-Giachritsis, and Louise Dixon. 2011. Review of meta-analyses on the association between child sexual abuse and adult mental health difficulties: A systematic approach. *Trauma, Violence, & Abuse* 12, 1 (2011), 38–49.
- [13] Tomoharu Iwata and Shinji Watanabe. 2013. Influence relation estimation based on lexical entrainment in conversation. *Speech Communication* 55, 2 (2013), 329–339. <https://doi.org/10.1016/j.specom.2012.08.012>
- [14] Jeffrey H. Kahn, Renée M. Tobin, Audra E. Massey, and Jennifer A. Anderson. 2007. Measuring emotional expression with the Linguistic Inquiry and Word Count. *American Journal of Psychology* 120, 2 (2007), 263–286. <https://doi.org/10.2307/20445398>
- [15] Julie B Kaplow, Erin Hall, Karestan C Koenen, Kenneth A Dodge, and Lisa Amaya-Jackson. 2008. Dissociation predicts later attention problems in sexually abused children. *Child Abuse & Neglect* 32, 2 (2008), 261–275.
- [16] Manoj Kumar, Rahul Gupta, Daniel Bone, Nikolaos Malandrakis, Somer Bishop, and Shrikanth S. Narayanan. 2016. Objective Language Feature Analysis in Children with Neurodevelopmental Disorders During Autism Assessment. In *Proc. Interspeech, San Francisco, USA*. 2721–2725.
- [17] Michael E Lamb. 1996. Effects of investigative utterance types on Israeli children's responses. *International Journal of Behavioral Development* 19, 3 (1996), 627–638.
- [18] Michael E Lamb and Angele Fauchier. 2001. The effects of question type on self-contradictions by children in the course of forensic interviews. *Applied cognitive psychology* 15, 5 (2001), 483–491.
- [19] Michael E Lamb, Yael Orbach, Irit Hershkowitz, Phillip W Esplin, and Dvora Horowitz. 2007. A structured forensic interview protocol improves the quality and informativeness of investigative interviews with children: A review of research using the NICHD Investigative Interview Protocol. *Child abuse & neglect* 31, 11–12 (2007), 1201–1231.
- [20] Michael E Lamb, Kathleen J Sternberg, Yael Orbach, Irit Hershkowitz, and Dvora Horowitz. 2003. Differences between accounts provided by witnesses and alleged victims of child sexual abuse. *Child Abuse & Neglect* 27, 9 (2003), 1019–1031.
- [21] Chelsea Leach, Martine B. Powell, Stefanie J. Sharman, and Jeromy Anglim. 2017. The Relationship Between Children's Age and Disclosures of Sexual Abuse During Forensic Interviews. *Child Maltreatment* 22, 1 (2017), 79–88. <https://doi.org/10.1177/1077559516675723>
- [22] Noah Liebman and Darren Gergle. 2016. Capturing Turn-by-Turn Lexical Similarity in Text-Based Communication. *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing - CSCW '16* (2016), 552–558. <https://doi.org/10.1145/2818048.2820062>
- [23] Thomas D. Lyon, Stacia N. Stolzenberg, and Kelly McWilliams. 2017. Wrongful Acquittals of Sexual Abuse. *Journal of Interpersonal Violence* 32, 6 (2017), 805–825. <https://doi.org/10.1177/0886260516657355>
- [24] Nikolaos Malandrakis and Shrikanth S. Narayanan. 2015. Therapy language analysis using automatically generated psycholinguistic norms. In *Proc. Interspeech, Dresden, Germany*. 1952–1956.
- [25] Iris B Mauss and Michael D Robinson. 2009. Measures of emotion: A review. *Cognition & emotion* 23, 2 (2009), 209–237. <https://doi.org/10.1080/02699930802204677>
- [26] Pedro J Moreno, Chris Joerg, Jean-Manuel Van Thong, and Oren Glickman. 1998. A recursive algorithm for the forced alignment of very long audio segments. In *Fifth International Conference on Spoken Language Processing*.
- [27] Shrikanth Narayanan and Panayiotis G. Georgiou. 2013. Behavioral signal processing: Deriving human behavioral informatics from speech and language. *Proc. IEEE* 101, 5 (2013), 1203–1233. <https://doi.org/10.1109/JPROC.2012.22326291> arXiv:NIHMS150003
- [28] Mary L Paine and David J Hansen. 2002. Factors influencing children to self-disclose sexual abuse. *Clinical Psychology Review* 22, 2 (2002), 271 – 295.
- [29] Branka Zei Pollermann. 2002. A place for prosody in a unified model of cognition and emotion. In *Speech Prosody 2002, International Conference*.
- [30] Eleanor A Price, Elizabeth C Ahern, and Michael E Lamb. 2016. Rapport-building in investigative interviews of alleged child sexual abuse victims. *Applied Cognitive Psychology* 30, 5 (2016), 743–749.
- [31] Joshua L. Proctor, Steven L. Brunton, and J. Nathan Kutz. 2014. Dynamic mode decomposition with control. 15, 1 (2014), 142–161. <https://doi.org/10.1137/15M1013857> arXiv:1409.6358
- [32] Lorraine Radford, Susana Corral, Christine Bradley, Helen Fisher, Claire Bassett, Nick Howat, and Stephan Collishaw. 2011. Child abuse and neglect in the UK today. (2011).
- [33] Fabien Ringeval, Björn Schuller, Michel Valstar, Jonathan Gratch, Roddy Cowie, Stefan Scherer, Sharon Mozgai, Nicholas Cummins, Maximilian Schmitt, and Maja Pantic. 2017. AVEC 2017: Real-life Depression, and Affect Recognition Workshop and Challenge. In *Proceedings of the 7th Annual Workshop on Audio/Visual Emotion Challenge*. ACM, 3–9.
- [34] Clarence W. Rowley, Igor Mezi, Shervin Bagheri, Philipp Schlatter, and Dan S. Henningson. 2009. Spectral analysis of nonlinear flows. *Journal of Fluid Mechanics* 641, Rowley 2005 (2009), 115–127. <https://doi.org/10.1017/S0022112009992059>
- [35] James A Russell. 1980. A Circumplex Model of Affect. *Journal of Personality and Social Psychology* 39, 6 (1980), 1161–1178.
- [36] Peter J. Schmid. 2010. Dynamic mode decomposition of numerical and experimental data. *Journal of Fluid Mechanics* 656 (2010), 5–28. <https://doi.org/10.1017/S0022112010001217> arXiv:arXiv:1312.0041v1
- [37] Lauren E. Scissors, Alastair J. Gill, Kathleen Gergathy, and Darren Gergle. 2009. In CMC we trust: the role of similarity. *27th international conference on Human factors in computing systems - CHI 09* (2009), 527–536. <https://doi.org/10.1145/1518701.1518783>
- [38] DA Segovia and AM Crossman. 2012. Cognition and the Child Witness: Understanding the Impact of Cognitive Development in Forensic Contexts. *Current topics in children's learning and cognition* (2012), 83–104. <https://doi.org/10.5772/53938>
- [39] Victoria Talwar, Kyle Hubbard, Christine Saykaly, Kang Lee, RCL Lindsay, and Nicholas Bala. 2018. Does parental coaching affect children's false reports? Comparing verbal markers of deception. *Behavioral sciences & the law* 36, 1 (2018), 84–97.
- [40] Yla R Tausczik and James W Pennebaker. 2010. The psychological meaning of words: LIWC and computerized text analysis methods. *Journal of language and social psychology* 29, 1 (2010), 24–54.
- [41] Hao Zhang, Clarence W. Rowley, Eric A. Deem, and Louis N. Cattafesta. 2017. Online dynamic mode decomposition for time-varying systems. (2017), 1–22. arXiv:1707.02876 <http://arxiv.org/abs/1707.02876>