

AACL-2025 Tutorial Title:

NLP for Affective Science:

Exploring Fundamental Questions on Emotions through Language and Computation

Speakers:

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Abstract: **Affect** refers to the fundamental neural processes that generate and regulate emotions, moods, and feeling states. Affect and emotions are central to how we organize meaning, to our behaviour, to our health and well-being, and to our very survival. Despite this, and even though most of us are all intimately familiar with emotions in everyday life, there is much we do not know about how emotions work, and how they impact our lives. **Affective Science** is a broad interdisciplinary field that explores these and other related questions about affect and emotions.

Since **language** is a powerful mechanism of emotion expression, there is great potential in using language data and computation to shed light on fundamental questions about emotions. However, even though much progress has been made in areas such as sentiment analysis and affective computing, much of the research focus is squarely on automatically classifying pieces of text. In this tutorial, we will present an introduction to Affective Science and argue that NLP is uniquely positioned to contribute to it: to boldly explore a new frontier — to use language and computation to ask fundamental questions about how emotions and affect work. We will cover the broad areas of research within this nascent field of study - **Computational Affective Science (CAS)**:

1. The Theories and Nature of Affect
2. The Relationship of Affect with the Mind, Body, and the World Around Us
3. Affective Data and Resources
4. Affective Tasks and Methods (including Generative AI)
5. Applications
6. Ethics, Fairness, Theory Integration, Philosophical Implications

And discuss specific case studies and key pieces of work within CAS on emotion dynamics, emotion granularity, affect lexicons, stereotype cognition models, and the language of interoception.

This tutorial is a vision of Computational Affective Science that advances our understanding of emotion and human experience, builds useful applications, and plays an active role in navigating the societal implications of the powerful underlying technologies.

Bios:

Dr. Krishnapriya Vishnubhotla is a Research Associate at the National Research Council Canada (NRC). She received her PhD in Computer Science from the University of Toronto in 2024. Her thesis projects focused on modelling variation in language use as a function of

speaker identity, a research area that falls at the intersection of natural language processing, sociolinguistics, and affective science. She is interested in leveraging large text datasets to better understand how facets of individual identity and communicative goals affect the ways in which information is conveyed via language, and more broadly in the applications of NLP technologies in the social sciences and humanities.

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Dr. Saif M. Mohammad is a Principal Research Scientist at the National Research Council Canada (NRC). He received his Ph.D. in Computer Science from the University of Toronto. Before joining NRC, he was a Research Associate at the Institute of Advanced Computer Studies at the University of Maryland, College Park. His research interests are in Natural Language Processing (NLP), especially Lexical Semantics, Computational Affective Science, AI Ethics, and Computational Social Science. He is currently an associate editor for Computational Linguistics and TACL, and Senior Area Chair for ACL Rolling Review. His word--emotion resources, such as the NRC Emotion Lexicon and VAD Lexicon, are widely used for analyzing emotions in text. His work has garnered significant media attention, including articles in Time, SlashDot, LiveScience, io9, The Physics arXiv Blog, PC World, and Popular Science.

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Photo:

