Automated Face Analysis for Affective Computing
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(Abstract)
Facial expression communicates emotion, intentions, and physical states, and regulates interpersonal behavior. Automated Face Analysis (AFA) for detection, synthesis, and understanding of facial expression is a vital focus of basic research. While open research questions remain, the field has become sufficiently mature to support initial applications in a variety of areas. We review 1) human-observer based approaches to measurement that inform AFA; 2) advances in face detection and tracking, feature extraction, registration, and supervised learning; and 3) applications in action unit and intensity detection; physical pain, psychological distress, and depression; detection of deception; interpersonal coordination; expression transfer; and other applications. We consider user-in-the-loop as well as fully automated systems, and discuss open questions in basic and applied research.