

Biometric Consortium 2004 Conference

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Topic: An Evaluation of Fingerprint Quality across an Elderly Population vis-à-vis an 18-25 Year Old Population Baseline

Abstract: This study evaluated fingerprint image quality across two populations, elderly and young, in order to assess age and moisture as potential factors affecting utility image quality. Specifically, the examination of these variables on two populations, one over the age of 62, the other between the ages of 18-25, occurred on two fingerprint recognition devices (one capacitive, one optical). Collected individual variables included: age, gender, ethnic background, handedness, moisture content of each index finger, occupation(s), subject's use of hand moisturizer, and prior usage of fingerprint devices. Computed performance measures included failure to enroll, and quality scores. The results indicated that there was statistically significant evidence that both age and moisture affected utility image quality of each index finger at $\alpha=0.01$ on the optical device. In addition, there was statistically significant evidence that age affected utility image quality of each index finger on the capacitance device, but moisture was only significant for the right index finger at $\alpha=0.01$.

Biography: Nate Sickler, is a member of the Biometric Standards, Performance and Assurance Laboratory in the Department of Industrial Technology. Mr. Sickler has been involved in biometrics for over 2 1/2 years, with particular attention to testing of commercially off-the-shelf fingerprint recognition sensors. His M.S. directed project research was in the field of image quality as related to fingerprint recognition. Currently, Mr. Sickler is completing his Ph.D in the Department of Industrial Technology, with an emphasis in Biometrics.

Mr. Sickler also teaches four upper level undergraduate labs in the area of Automatic Identification and Data Capture, experiencing technologies from bar codes to biometrics. In addition to his teaching responsibilities, Mr. Sickler is a member of the InterNational Committee for Information Technology Standards (INCITS) M1 Biometrics Technical Committee. His standards activities include voting member status in the following developments: M1.1 Biometric Vocabulary, M1.5 Biometric Performance Testing and Reporting, Ad Hoc on Biometric Sample Image Quality, and Ad Hoc on Multi-biometrics. He is also a U.S. delegate for ISO/IEC JTC1 SC37 TG1 Biometric Vocabulary and is the co-editor of the biometric vocabulary corpus.

Mr. Sickler holds a M.S. degree in Industrial Technology with an emphasis in biometrics, and a B.S. in Industrial Technology with a Minor in Organizational Leadership and Supervision from Purdue University.