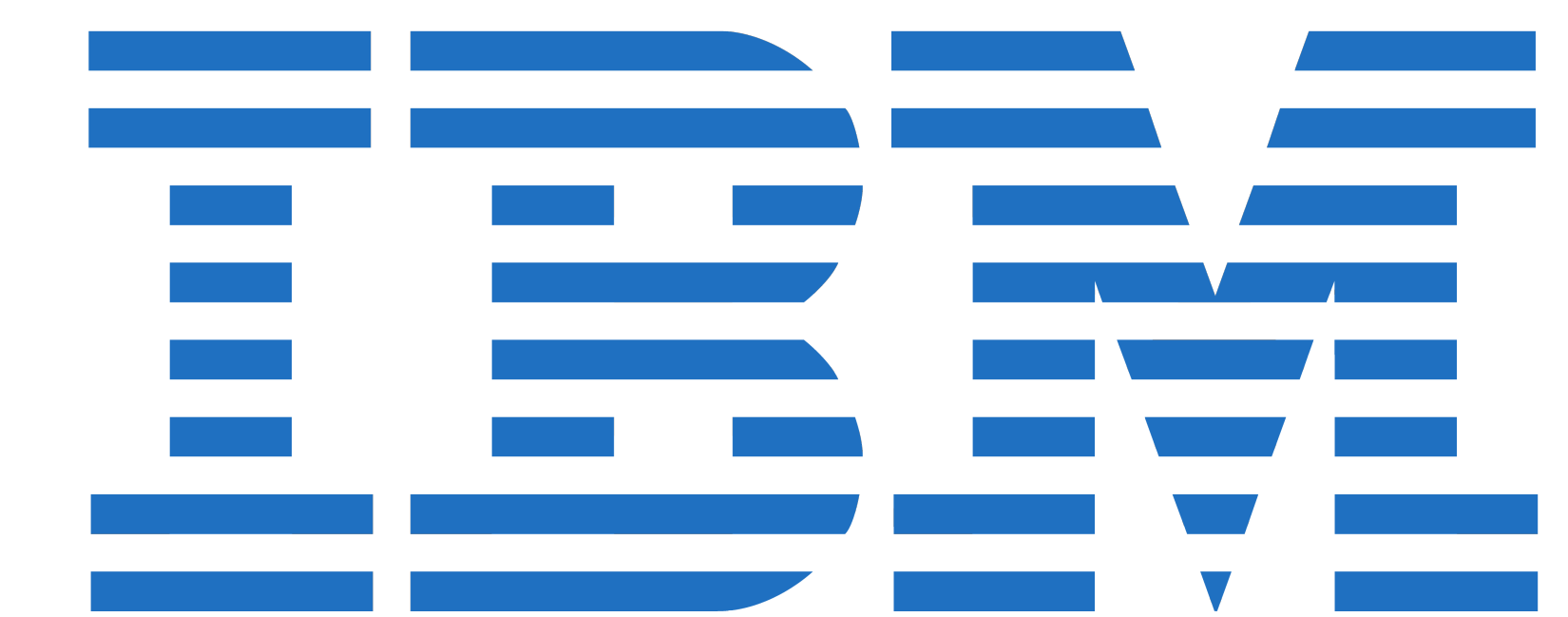




Automated Transcription, Digital Transfer, and Quality Scoring of the DD-1380 Tactical Combat Casualty Care (TCCC) Card



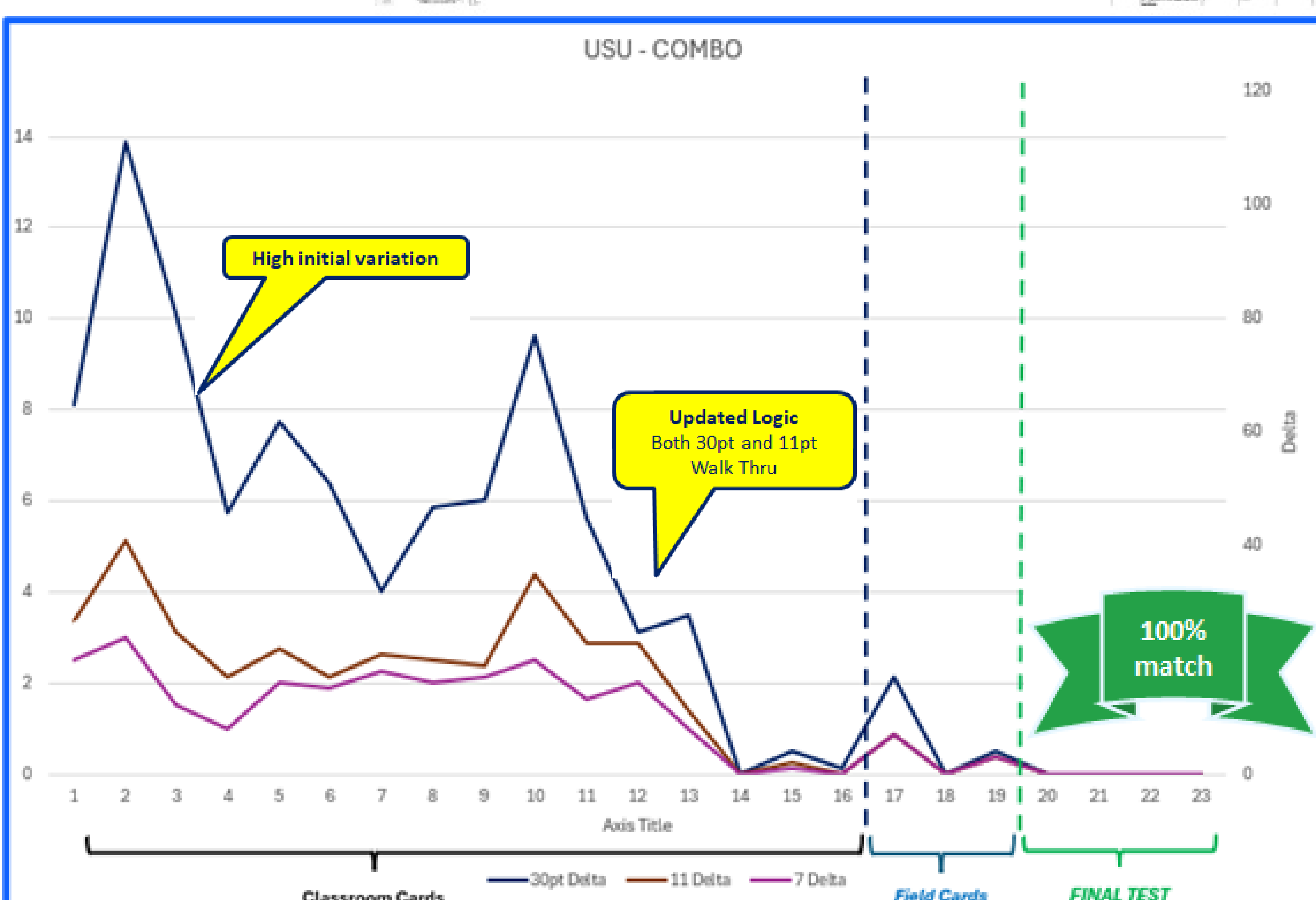
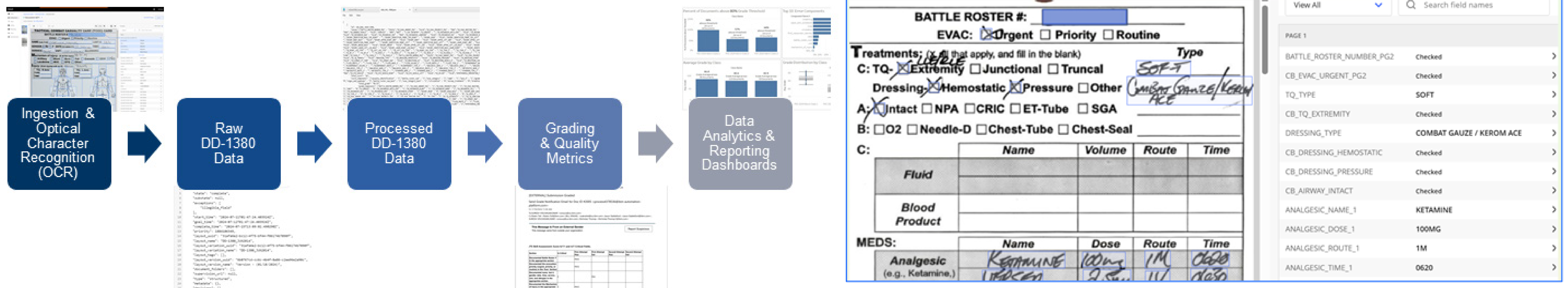
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Approach

Defense Health Agency guidelines mandate use of the DD-1380 Tactical Combat Casualty Care (TCCC) Card to standardize patient documentation in prehospital environments. Currently, archived data is evaluated for quality using a 30-item checklist established by the Joint Trauma System (JTS). The primary aim of this project was to digitize and automate the scoring of these cards, enhancing performance feedback and processing large card volumes with far greater efficiency.

The Uniformed Services University of the Health Sciences (USUHS) and International Business Machines (IBM) partnered to couple Optical Character Recognition (OCR) with Machine Learning (ML) to transcribe completed DD-1380s and extract the data into a Java Script Object Notation (JSON) file output. The data can then be displayed on any DoW compliant device such as the battlefield assisted trauma distributed observation kit (BATDOK) platform.

Automated scoring and transcription of the cards was directly compared iteratively against two expert human assessors until score deltas consistently reached zero. An initial verification phase scored 285 DD-1380 cards generated during USUHS classroom and field training handover exercises. A subsequent validation phase scored 60 de-identified DD-1380s sourced securely from the JTS archives.



Results

Outcomes confirmed the ability to accurately extract handwritten data from all 172 distinct form fields and comprehensively assess them for completeness. All data was successfully exported into a JSON file easily read on the BATDOK platform.

Poor quality, incomplete, or missing DD-1380s directly hinder patient care by obscuring actionable information regarding a casualty's physiological status within the pre-hospital environment. Automated transcription and scoring of DD-1380s definitively addresses our inability to measure the effectiveness of current pre-hospital triage and treatment. This accelerates the evaluative process, feeding critical information directly back to the DoD Trauma Registry.

Implementing a semi-structured approach to document analysis expanded our transcription method for compatibility with alternate formats, including obsolete DD-1380 versions stored in the JTS archives, alongside those utilized globally by allied nations like our NATO coalition partner forces.

Disclaimer

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