

## INNOVATING CROSS-DOMAIN SOLUTIONS TO DETECT EMERGING BIOLOGICAL THREATS

### : Near Real-time Analysis Of Long Reads For Detection Of Organisms Using Minion Sequencer

**Samir Deshpande** U.S. Army DEVCOM Chemical Biological Center **Pierce Roth** DCS Corporation **Jessica Hill** DCS Corporation **Alvin Liem** DCS Corporation **Maria Arevalo** U.S. Army DEVCOM Chemical Biological Center **Mark Karavis** U.S. Army DEVCOM Chemical Biological Center **Adina Doyle** Excet Incorporated **R. Cory Bernhards** U.S. Army DEVCOM Chemical Biological Center

Oxford Nanopore Technologies (ONT) developed a nanopore-based genome sequencer that has allowed for true mobility of field sequencing with a very small footprint. While the sequencing system has been miniaturized from the laboratory bench to fit inside a suitcase, the ability to perform analysis as the reads were acquired by the MinION has been a significant bottleneck. We have developed easy-to-use analysis software called 'realtime' which maps the reads as soon as they are base called and generates a graphical report that keeps track of taxonomic classification of reads to the database of sequences of interest. The mapped reads assigned to an organism is also provided with a computed confidence metric that uses various parameters. Using this software, we can identify an organism to the strain level within 20–30 minutes of sequencing, thereby eliminating logistical hurdles involved in accessing the internet, as well as data and sample transfer.

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