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UT is a Tier 1 research institution located in Austin, TX with a strong track record in computer science, bio-medical and electrical engineering, molecular bio-sciences, and cellular biology. NI (also located in Austin, TX) is a world leader in data acquisition, control, automated test systems, and high performance embedded computing.

The team proposes a new approach with which millions of individual fluorescently labeled peptides can be visualized in parallel, monitoring changing patterns of the fluorescence intensity. The resulting fluorosequences are then used to uniquely identify individual peptides with a high-throughput sequencing technology. End-to-end optimization of high-throughput sequencing.

- Identification and quantification of proteins by single (peptide) molecule methods using fluorophores and fluorosequencing.
- Base-calling algorithms for next-generation DNA sequencing systems.
- Structured low-rank matrix decomposition with applications to bioinformatics.
- High-precision, reconfigurable instrumentation & embedded controllers
- FPGA-based and heterogeneous computing for ultra-fast sequencing and parallel execution of algorithms

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