

POSTER PRESENTATION

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# Design of a DNA-based shift register

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## Background

DNA-based circuit design is an area of research in which traditional silicon-based technologies are replaced by naturally occurring phenomena taken from biochemistry and molecular biology. This research focuses on further developing DNA-based methodologies to mimic digital data manipulation, demonstrating how information can be parsed through a digital circuit comprised of DNA-based logic gates.

## Results and conclusion

A novel logic gate design based on chemical reactions is presented in which observance of double stranded sequences indicates a truth evaluation. Circuits are obfuscated by removing of physical sequence connections, allowing client-specific representative strands for input sequences, altering the input sequence strands over time, and varying the input sequence length. Shifting along the input stream to parse individual inputs is accomplished through simulated alternative splicing of DNA sequences stored in plasmid vectors.

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