




# From Consensus Research to Redbelly Network Pty Ltd

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## Abstract

Designing and implementing correctly a blockchain system requires collaborations across places and research fields. Redbelly, a company across Australia, India and USA, illustrates well this idea.

It started in 2005 at OPODIS, where we published the Reconfigurable Distributed Storage to replace distributed participants offering a service without disrupting its availability. This line of work [5] was instrumental to reconfigure blockchains without introducing hard forks. The research on the consensus problem we initiated at IRISA [4] led to rethinking PBFT-like algorithms for the context of blockchain by getting rid of the leader that can act as the bottleneck of large networks [6]. Our work on security led to disclosing vulnerabilities in Ethereum [3] and then motivated us to formally verify blockchain consensus [1]. Our work at the frontier of economics [9] led us to prevent front-running attacks [11] and to incentivize rational players to behave [8]. Our system work at Cornell and then at EPFL was foundational in experimenting blockchains across the globe [7].

Although not anticipated at the time, this series of work progressively led the University of Sydney and CSIRO, and later Redbelly Network Pty Ltd, to design the Redbelly Blockchain [2, 10], the platform of choice for compliant asset tokenisation.

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