

Control and optimization of high temperature heat pumps

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Develops advanced control, estimation, and supervisory optimisation for industrial HT-HPs delivering 120–500 °C process heat. Integrates with industrial waste-heat sources (variable temperature/flow, intermittent availability) via hybrid digital twins that characterise source quality in real time and route heat through recovery networks. Uses model-predictive control, health-aware set-points, and grid-responsive operation to maximise COP, stabilise transients, and cut life-cycle cost while electrifying process heat at scale.