Record Nr. UNINA9911021971703321 Autore Van Assche Jonah Titolo Event-Driven Circuit Architectures for Scalable and Adaptive Sensor Readout / / by Jonah Van Assche, Georges Gielen Cham:,: Springer Nature Switzerland:,: Imprint: Springer,, 2025 Pubbl/distr/stampa **ISBN** 9783031972850 9783031972843 Edizione [1st ed. 2025.] Descrizione fisica 1 online resource (265 pages) Collana Analog Circuits and Signal Processing, , 2197-1854 Altri autori (Persone) GielenGeorges Disciplina 006.22 Soggetti Embedded computer systems Electronic circuit design **Telecommunication Embedded Systems** Electronics Design and Verification Microwaves, RF Engineering and Optical Communications Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Introduction -- Literature Review -- Performance Evaluation of Level-Nota di contenuto Crossing ADCs -- A 10.4-ENOB Level-Crossing ADC with Adaptive Clocking Strategy -- FREYA: an Event-Driven SoC for Spiking End-to-End Classification.-Conclusions and Future Work. Sommario/riassunto This book describes the analysis and design of event-driven processing circuits in the mixed-signal domain, which aim to directly reduce the amount of system data when sampling the data. By investigating eventdriven sensing techniques, that adaptively adjust the sampling rate based on the signal activity of time-sparse signals such as the ECG or

circuits in the mixed-signal domain, which aim to directly reduce the amount of system data when sampling the data. By investigating event-driven sensing techniques, that adaptively adjust the sampling rate based on the signal activity of time-sparse signals such as the ECG or action potentials, the circuit techniques described in the book aim to minimize the power consumption of the sensing device as well as the transmission power. This optimization is explored in the book by investigating event-driven level-crossing ADCs (LCADCs). Readers will gain a system-level understanding of chip design for biomedical wearables, learn which parts of the system are the most important and how the different building blocks of a system interact. Provides a system-level perspective on wearable devices for healthcare; Reviews

existing level-crossing ADC literature and provides a detailed analysis of this event-driven type of circuit; Shows readers how level-crossing ADCs work and what are the tradeoffs, compared to other circuit architectures.