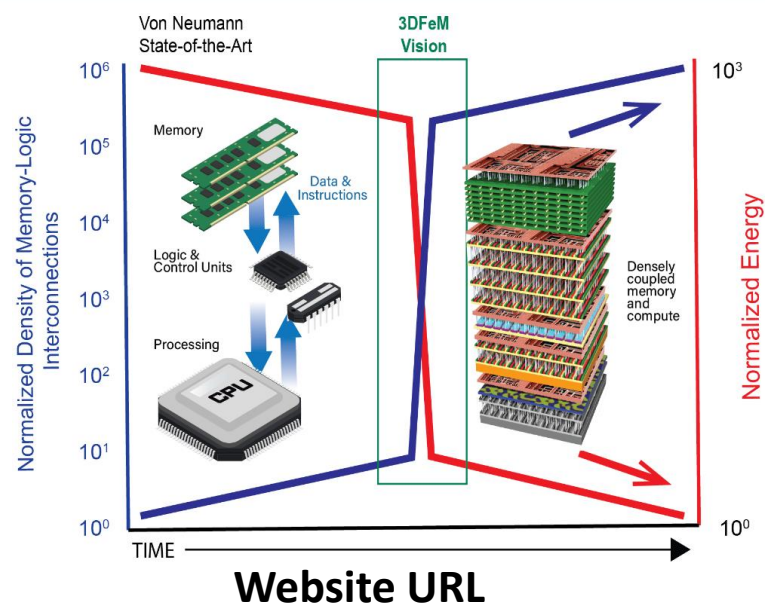


Three-Dimensional Ferroelectric Microelectronics (3DFeM)

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MISSION: To exploit the 3rd dimension in microelectronics for functions beyond interconnects by incorporating low-power, non-volatile ferroelectric memory. Ferroelectric materials and new devices will be co-designed, integrated reliably, and densely interconnected with logic to enable low-power, 3D non-von Neumann computation.



RESEARCH PLAN

3DFeM will: (i) design ferroelectricity in new host crystal structures, (ii) tailor the coercive voltages through engineering emergent nanoscale inhomogeneity in scaled ultra-thin films, (iii) deposit ferroelectric materials with ancillary electronics at low temperatures at wafer scale, (iv) characterize materials at previously inaccessible time and length scales, and (v) demonstrate device functionality.