

PUBLICATIONS from our group related to **p-Bits for Probabilistic Spin Logic (PSL)**

Review Article

- K.Y. Camsari, B.M.Sutton and S.Datta “p-Bits for Probabilistic Spin Logic,” <https://arxiv.org/abs/1809.04028>

Bayesian Inference and Optimization

- B.Behin-Aein, V.Diep and S.Datta “A Building Block for Hardware Belief Networks”, [*Scientific Reports*, **6**, 29893 \(2016\)](#).
- B.M. Sutton, K.Y. Camsari, B. Behin-Aein and S.Datta “Intrinsic optimization using stochastic nanomagnets” [*Scientific Reports*, **7**, 44370 \(2017\)](#).

Invertible Boolean Logic

- K.Y. Camsari, R.Faria, B.M.Sutton and S.Datta “Stochastic p-bits for Invertible Boolean Logic” [*Phys. Rev. X*, **3**, 031014 \(2017\)](#).
- R. Faria, K.Y. Camsari and S. Datta ” Low Barrier Nanomagnets as p-bits for Spin Logic” [*IEEE Magnetism Letters*, **8**, 4105305 \(2017\)](#).

Implementation with Micro-controllers

- A.Z.Pervaiz, L.A.Ghantasala, K.Y. Camsari and S.Datta, “Hardware Emulation of Stochastic p-bits for Invertible Logic,” [*Scientific Reports*, **7**, 10994 \(2017\)](#).

FPGA Implementation

- A.Z.Pervaiz, L.A.Ghantasala, B.M.Sutton and K.Y. Camsari “Weighted p-bits for FPGA implementation of probabilistic circuits,” [*IEEE Transactions on Neural Networks and Learning Systems*, \[arxiv.org/abs/1712.04166\]\(https://arxiv.org/abs/1712.04166\)](#).

Embedded MRAM based implementation: SPICE simulation

- K.Y. Camsari, S. Salahuddin and S.Datta “Implementing p-Bits with Embedded MTJ’s,” [*IEEE Electron Device Letters*, **38**, 1767 \(2017\)](#).
- O.Hassan, K.Y.Camsari and S.Datta ”Voltage-driven Building Block for Hardware Belief Networks,” arxiv.org/abs/1801.09026.
- R.Faria, K.Y.Camsari and S.Datta ”Implementing Bayesian Networks with Embedded MRAM,” [*AIP Advances*, **8**, 045101](#).

Emulating qubits using p-bits

- K.Y. Camsari, S. Chowdhury and S.Datta "Scaled Quantum Circuits Emulated with Room Temperature p-Bits," <https://arxiv.org/abs/1810.07144>

Experimental Results

- Punyashloka Debashis, Rafatul Faria, Kerem Y Camsari, Joerg Appenzeller, Supriyo Datta, Zhihong Chen, "Experimental demonstration of nanomagnet networks as hardware for Ising computing," [2016 IEEE International Electron Devices Meeting \(IEDM\)](#).
- Punyashloka Debashis, Rafatul Faria, Kerem Y Camsari, Zhihong Chen, "Design of Stochastic Nanomagnets for Probabilistic Spin Logic," [IEEE Magnetism Letters](#), vol.9, 2018.