2018 Research Interest/Project Ideas

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https://freedom.cs.purdue.edu/blockchains

Potential projects: Today's geo-politically distributed organizations and consortia are faced with an acute demand for transparency. While the blockchain technology has the potential to meet this demand, the current blockchain frameworks are not private, flexible, and scalable enough to solve the hard transparency/provenance problems in the industry. Over the last three years, My students and I have been actively enhancing blockchains to make those useful for distributed organizations & consortia. Our work so far has been supported by National Science Foundation, Northrop Grumman, Ford Motors, Intel, and the German Universities Excellence Initiative.

Our prominent ongoing and near-term research and development projects are as follows:

Electronic Supply Chain Provenance using Blockchains

We have developed a production-line to build blockchain solutios/prototypes for physical as well as digital supply-chains. Our group can help the interested organization to build research prototypes in a few (4-5) months time. Now, we are working on protecting privacy for smart contract (i.e., business logic) from prying eyes. In the near future, we plan to develop crypto-augmented smart contracts for solving provenance problem that cannot be solved blockchains or cryptography alone.

Our other on going blockchain projects include
* Protecting Privacy for Smart Contract (i.e., Business Logic) from Prying Eyes, and
* Crypto-augmented Smart Contracts for Solving Problem that cannot be solved blockchains and cryptography alone.