Aspiring PI Info:
- Xudong He
- Professor
- Florida International University

Research interests:

- Petri Nets, Temporal Logic
- Model Checking, Convex Optimization
- Cyber Physical Systems (CPS)
- Neural Net Controllers
- Physics Informed Neural Nets (PINNs)

Current Project(s)

- Stability of Neural Net Controlled CPS
- Accuracy of PINNs as Surrogate Solutions of Partial Differential Equations (PDEs) for Scientific Computing Systems (SCS)

Project Idea(s)…

1) *Significance*: CPS with machine learning components are increasingly performing many important tasks of the society, however assuring their dependability is a grand research challenge. *Benefits*: Both government and industry will benefit from the trustworthiness of these systems. *Transition to Practice*: A methodology for designing and verifying stable NN controllers has been developed with a supporting tool chain.
2) *Significance*: PINNs can provide huge performance gains in SCS that require tremendous computing resources, however the accuracy of PINNs is hard to ensure. *Benefits*: Both government and industry will benefit from the accurate and high performing PINNs in SCS.

… and possible collaborators sought

- Formal Methods: scalable SMT solver expert and non-linear system and control expert
- Field: CPS and SCS