Design and implementation of a new lightweight chaos-based cryptosystem to secure IoT communications.

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Recap: Previously I read about the stable and unstable fixed points.

My Work: This week I'm learning more about chaos theory in online courses.

- Stable points are called attractors and unstable points are called repellers.
- All focus will be on stable fixed points.
- Another form of equations exist that are called logistic equations. This is a simple model of population growth, an iterated function.

  $$P_{n+1} = r\ P_n$$

  r is growth factor. For r>1, population will become infinity, for r=1 population will not change and for 0<r<1 population will decrease.
- Population can become infinity which is to be handled in this eqution.
- Modifying above equation we get,

  $$f(P) = r\ P\ (1 - \frac{P}{A})$$

  Here A = Annihilation population.

  If P<<A, then f(p) = rP
- By dividing both side with A and simplifying we get,

  $$X_{n+1} = r\ X_n(1 - X_n)$$
  $$f(x) = r\ x\ (1 - x)$$
  $$= rx - rx^2$$

  This is standard form of the equation which is a parabola.

Future Plan: Study more details about the mathematics and mechanisms of chaos theory.