**Hackerbot**

1. Goal
   1. Solve CTF challenges using machine learning
2. Methods
   1. Scrape relevant commands and data from CTF web pages
      1. <code> tag on all necessary commands on pwnable.tw
      2. Other related tags and files
   2. Construct simple commands
      1. Use keywords as commands and arguments
      2. Parse function call format from online documentation
   3. Machine Learning
      1. Create new action from each keyword that runs without an error
      2. Policy network based on actions
      3. Change policy network with deep reinforcement learning
         1. Run experiments with some or all keywords as parameters
         2. Reward function based on console output
            1. Error – negative
            2. List of filenames – positive
            3. Flag – very positive
3. Implementation
   1. Deep Q-Network
      1. Finds “optimal” policy
      2. Learn Q-function
         1. Value of a state-action pair
      3. Choose actions based on Boltzmann policy
         1. Pick actions with a frequency determined by their Q-values
            1. Selects among good options
            2. Variation without too much randomness
   2. PyTorch
   3. Hard work
   4. Power of friendship
4. Visualization
   1. Feed of bot actions
      1. Show something slow enough for humans to understand
5. Practicality
   1. Unleash hackerbots to rage wanton destruction
   2. Tear apart this wretched capitalist regime at the seams