Robert Martino

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Education

- **Rensselaer Polytechnic Institute** — **Troy, NY**
  M.S. Computer Science, Cum Laude, GPA: 3.52/ 4.0 — *2017-2018*

- **Rensselaer Polytechnic Institute** — **Troy, NY**
  B.S. Computer Science, Cum Laude, GPA: 3.60/ 4.0 — *2014-2017*

Experience

- **Assured Information Security Inc.** — **Rome, NY**
  Research Scientist — *January 2019 - Present*

  Machine Learning for Defensive Cyber Operations
  - Conducted internal R&D project that successfully applied machine learning to detect hypervisor intrusion
  - Designed a novel neural network driven evolutionary fuzzing algorithm for binary analysis
  - Combined above technologies in DARPA's SHEATH program, using the evolutionary fuzzing algorithm in a hypervisor to successfully detect trojans on network interface cards. Publication resulted from the work.

  Binary Comparison and Obfuscation:
  - Generated intelligent comparison metrics for obfucscated binaries using graph neural networks on control flow graphs
  - Recruited to the software engineering team to integrate those binary comparison techniques into existing production technology

  Adversarial Reinforcement Learning:
  - Proposed, wrote, and led internal R&D project utilizing adversarial reininforcement learning for the board game Stratego
  - Created triggers for exploiting Deepmind's AlphaStar on Starcraft2 minigames for a contract with the Office of Naval Research

- **GE Global Research Center** — **Niskayuna, NY**
  Fellow Intern — *May 2018 - August 2018*
  - Developed a successful computer vision prediction model for ultrasound images of subcutaneous lipomas
  - Created dataset and pipeline for the model, achieved 85% classification accuracy on a noisy dataset
  - Reverse engineered a fault test generator for data extraction and integrated it into an industrial ethereum blockchain

- **Systems & Technology Research Inc.** — **Boston, MA**
  Machine Learning Intern — *May 2017- August 2017*
  - Analyzed and predicted location and timing of notable events in the Middle East for IARPA's Mercury Program
  - Applied unsupervised learning to cluster data-sparse areas into prediction targets
  - Employed structured prediction to exploit geospatial relationships of prediction targets for higher accuracy

Projects

- **Strat-O-Matic Football Server**
  January 2021 - Present
  - Currently implementing the classic multiplayer sports board game Strat-O-Matic in Python
  - Stood up the game as a web app with Django in Docker, using Redis to serve multiplayer functionality
  - Creating complex and modifiable statistical models for all NFL players from 1956-2020 to facilitate hyper-realistic game play between teams from different eras

- **DilbertGAN**
  October 2019 - August 2020
  - Scraped and cleaned custom dataset of all *Dilbert* comics since 1989 along with corresponding text and labels
  - Created a test bed with the data for testing the latest GAN models and also experimenting with novel GAN approaches to image and natural language coherence across panels

Skills

- **Primary Languages:**
  Python - Tensorflow, Keras, Pytorch, Pandas, Numpy, OpencCV, Sci-kit Learn, Jupyter Lab & Notebooks

- **Strong proficiencies:**
  Bash Scripting, Git, Linux, Docker, SQL, C, Wireshark, Agile Software Development, Technical Writing

Publications

- Inman, J., J. Wright, **R. Martino**, M. Gale, C. Rogers, R. Dora, D. Mitchell, D.R. Dewhurst, N. Gupta. (2021) FALCHION: Fuzzing Automatically to Locate Compromised Hardware with Isolation to Omit Noise. GOMACTech Conference.