

David Giansanti

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<https://github.com/djg230>

Skills

- **Languages:** Python, Java, Javascript, C/C++, HTML, Matlab
- **Packages:** Git, NumPy, PyTorch, TensorFlow, Matplotlib, ImageJ
- **OS:** Linux/Unix, MacOS, Windows
- **Databases:** MySQL
- **Office Programs:** Google Colab, Blender, Excel, Word, Powerpoint

Projects

Backdoor Attack on the ResNet-18 Database

Poisoned the CIFAR-10 image set by adding trigger images, then trained a ResNet-18 neural network model with normal and poisoned images to create a backdoor in the model that recognized poisoned images with 91.49% accuracy.

Java Web Server

Produced a multi-threaded Java based web server able to parse basic HTTP 1.0 requests including GET, POST, and HEAD requests and return payloads that followed MIME types from RFC-1521. The server was capable of holding user's cookies which stored the date of their last visit.

Optical Character Recognition

Created an OCR training model in Python which used binarization to classify letters by their contours and then recognize them. The model was then tested and refined by using dynamic thresholding and implementing a k-nearest neighbor approach to improve recognition accuracy by 20%.

Monoalphabetic Cipher Solver

Designed a Python program which analyzed the frequency of letters and words in monoalphabetic ciphertext to create a key. This was improved by finding the letter patterns of all words in the ciphertext, and mapping them to most common dictionary words with the same patterns. This approach was able to decode monoalphabetic ciphertexts with 95% accuracy.

Education

Rutgers University-New Brunswick | 2017- 2021 | Bachelor of Science

- Major in Computer Science with 3.3 GPA
- Date of Graduation: May 16, 2021

Extracurriculars

- DJ at 90.3 The Core | 2019-2020
 - Scheduled content to broadcast in advance to eliminate dead air
 - Communicated with DJ's around my timeframe to ensure a cohesive experience for listeners
 - Operated radio equipment and mixed audio levels, and took mic breaks to engage with audience