Ashutosh Sathe

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Interests

System Design, Algorithms, Computer Vision, Deep Learning

Education

- **College of Engineering, Pune** — Pune, India
  Bachelor of Technology in Computer Engineering; CGPA: 9.1/10 — *2016-2020*

Experience

- **Aspect Ratio** — Pune, India
  Analyst — *July 2020 - September 2020*
  - **COVID-19 Modelling**: Used temporal machine learning methods to model COVID-19 cases in various countries.

- **Indian Institute of Science, Bangalore** — Bangalore, India
  Summer Research Intern @ Video Analytics Lab — *May 2019 - July 2019*
  - **Transferable Adversarial Robustness**: Explored a robust preprocessing method that allows removal of adversaries before passing them to the model.
  - **Robustness against "Spatial Transformation Attacks"**: Research on a regularizer that improves robustness against "Spatial Transformation Attacks" without any adversarial training.

- **Indian Institute of Technology, Bombay** — Powai, India
  Software Development Intern @ Content Team IITBombayX — *May 2018 - July 2018*
  - **Advanced HTML XBlock for Open edX platform**:
    * Worked on an "XBlock" that allows the course editor to put full fledged HTML + CSS + JavaScript content into an Open edX course.
    * The XBlock features an enhanced editor that supports autocomplete, autoformatting, autoindentation and even live preview. The XBlock also considers security concerns about putting JS into course and takes proper steps to sandbox it properly.

Programming Skills

- **Languages**: Python, C++, C, JavaScript, LaTeX
- **Technologies**: Git, Gerrit, Node, Django, Docker, Makefile
- **Libraries**: PyTorch, TensorFlow, Keras, Matplotlib, GTK+3

Projects

- **Spreaddit**: An open source, lightweight spreadsheet editor completely written in C. It supports reading/writing CSV and ODS files, sorting the file on specified column. It also supports basic arithmetic expression (e.g. C3=C1+C2) evaluation based on cell data
- **scarpet-nn**: A set of tools and libraries to run binarized neural networks in Minecraft. Allows the user to convert PyTorch models into scarpet model. Main challenge was developing neural network API in scarpet. (scarpet is a functional-like programming language in Minecraft which does not support object-oriented programming natively)
- **Adversarial Reprogramming**: Simple PyTorch implementation of adversarial reprogramming. My experiments included training a ResNet18 on CIFAR-10 dataset, followed by reprogramming this network to classify MNIST as well. Reprogrammed network can get **93%** accuracy on MNIST.
- **POP1 ↔ POP2**: A CycleGAN based approach for converting gameplay footage of PC game *"Prince of Persia 1"* to look like *"Prince of Persia 2"* . Used PyTorch for implementing CycleGAN.

A more comprehensive list of projects and their docs at https://ashutoshbsathe.github.io/projects