Gaurav Dixit

gaurav.dixitv@gmail.com, git | (91) 8087265682

EDUCATION

Pune Institute of Computer Technology, Pune, India
Bachelor of Engineering in Computer Science, August 2016 GPA: 3.77

St. Joseph's Convent, Jalgaon, India
CBSE XII AISSCE, May 2012 GPA: 4.0

SKILLS

Programming: (Proficient)C/C++, TS/JS; Python, C#, Perl, Java, SQL, Matlab
Frameworks: WebGL, TensorFlow, Qt, scikit-learn, Git, OpenCV

EXPERIENCE

Ubisoft, Pune, India (August 2016 - Present)
Programmer

- Unannounced title (due release early 2018) - A web game (for desktop and mobile) that focusses on rigid body physics. The game has an experimental mode that uses agents trained with policy gradient and NEAT.
- Rendering Engine - This is a webgl rendering engine that focuses on speed and mobile support. I started writing the engine as discrete components that worked with existing open source frameworks to assist in rendering. With time, this became a complete standalone rendering engine. Some parts of the engine will eventually be open source.
- Focus Framework - I developed (and maintain) an interactive focus engine (used in production by Ubisoft for microconsoles) which conforms to the html user interaction standard, provides spatial navigation, text and graph based rule parsing. Written in c++, it can be easily dropped in as a library to an existing interface that needs keyboard/controller/remote support. Some parts of the framework (specially parts that implement the html user interaction standard) will soon be open source my git.
- Trials Frontier - I briefly worked on in-game content and bike physics.

BMC Software, Pune, India (August 2015 - August 2016)
Software Development Project Intern

- We developed a Log Event analysis tool using a variation of the Rete algorithm for real time analysis of network events.The tool could perform event log associations, determine root cause of an event and suggest a prognosis for a chain of dependent events in real time
- Using the Log Event tool, we labeled(security levels) archived logs from production. A Neural Network was then implemented and trained with this data and could predict log severity in real time. I wrote a RNN (LSTM), which was trained on associated sequences from the archived logs. By continuously evaluating live logs, the RNN could predict and warn about potential failures ahead of time.

TEACHING EXPERIENCE

Pune Institute of Computer Technology, Pune, India

- **GUI Programming (Qt)**
  I taught this course to second year and third year computer science students. The course introduced students to writing user interfaces with Qt. It covered development with c++, writing dynamic interfaces with QML, talking to the web with JS and writing cross platform apps.
- **Programming Paradigms (C/C++)**
  I taught this short course to second year students. The course covered writing generic code with c, using templates in c++, object oriented design and design patterns.
- **Scripting (Python, Perl)**
  This was a short course for second year cs students that covered web programming with python (writing a blog using Flask, MongoDB), CGI and regular expressions with perl.

Maharashtra Institute of Technology, Pune, India

- **GUI Programming (Qt)**
  I taught this short course to second year computer science students. The course covered writing cross platform desktop and mobile applications using Qt and QML.

PROJECTS

- ### Image Orientation Analyzer
  Implemented a deep convolutional neural network that predicts the correct orientation of an Image. I started training on mnist and caltech 256. The neural network outputs a vector of 360 classes with about 96.7% accuracy. The network found ImageNet to be slightly harder - an accuracy of 91.8% . I am working on combining this with NEAT to help generate networks with better topologies.
- ### Basilisk
  Basilisk is a bootstrapping algorithm that can generate lexicons from a corpus. I implemented it in Perl and trained it with the New York Times Annotated Corpus. The goal was to generate a lexicon of tech corporations. The seed words were a mixture of multinational corporations and small scale business firms, since these usually occur in distinct contexts. The implementation provided fairly good results albeit being very sensitive to the choice of the seed words.
- ### App Development
  I have developed several mobile apps over the years that focus on ease of use and productivity. Most of my apps use some machine learning technique to help solve a real world problem. My Github covers all apps in brief.