Angad Singh

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Education

University of Toronto   **Sept 2014 – May 2018**
Honors Bachelor of Science in Computer Science,
Focus in Artificial Intelligence

Work Experience

Tata Consulting Services – Technical Application Analyst   **Feb 2019 – Current**

- Completed introductory training in Java and Eclipse. Created an application for booking rooms and for both clients and admins.
- Placed as TCS contractor to the Royal Bank of Canada to work on their Anti Money Laundering Systems and Fraud prevention system to assist with development and support of the systems.
- Monitored the Cloudera Hadoop cluster and resolved any environmental failures and memory issues. Created SQL queries in DB2 and Hadoop to help find causes of issues.
- Created Scripts in Batch, Python, Shell to help automate daily tasks. This includes execution of SQL queries and the creation of Excel spread sheets detailing issues or irregularities in the system.
- Preformed upgrades and changes on the live Linux based production environment.

Evertz Microsystems – Project Engineer   **May 2018 – Jan 2019**

- Created scripts to automate the pre-possessing and transcoding of assets using JavaScript and Python. Git was used as the primary version control manager for scripts
- Created and maintained the primary scripts for NBCU's non-linear delivery of assets to media service providers. This system utilized various transfer types such as Signiant and Faspex.
- Created targeted SQL queries, enabling powerful on-the-fly reporting of the system's state to important stakeholders
- Ran code and performed thorough testing on linux-based systems to ensure proper operation in exhaustive test cases.
- Implemented clean and reusable code for SCRUM methodologies. Performed code reviews so that code is consistent and free of bugs.
- Participated in bi-weekly sprint meetings to organize workload for the upcoming sprint. Used JIRA to rank tickets based on their difficulty and time required.

Technical Skills

Languages:	Python (Expert), JavaScript (Expert), C# (Proficent), Java (Proficent), SQL (Proficent), Bash (Proficent), MATLAB (Prior Experience), C/C++ (Prior Experience)
Frameworks/ APIs:	Numpy (Expert), Pytorch (Proficent), Reactive.js (Proficent), Node.js (Proficent), Blender (Prior Experience)
Tools:	Unity, Git, Subversion, CSS, Eclipse, Visual Studio
Environments:	Linux, Windows

Publication

Creative Flow+ Dataset – MATLAB, Python, Bash   **Sept 2017 – Jan 2018**

- Developed an optical flow dataset similar to MPI Sintel Dataset using the Blender Python API. The project was published as a part of the 2019 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) under the title of Creative Flow+ Dataset.

- Users would be able to create their own datasets with different cartoons and stylized effects. This data set can then be used with existing optical flow algorithms as training data or to test how well the algorithm generalizes.
- Created scripts in bash that would help users automate the process of rendering batches of Blender objects. In addition, created Python scripts using the Blender API to randomize the camera placement in the scene.
- Utilized MATLAB to gather statistical data about how well some optical flow algorithms performed on the dataset.
- Modified the Blender application in order to output the ground truth data required with the need for the UI. This required some modification of the blender code written C and required a recompile of the application for Linux and Mac.

Academic Projects

Riff Warrior – C#, Unity   **Sept 2017 – Feb 2018**
- Worked with a diverse team of programmers, artists and musicians to create a third person action adventure game in the Unity game engine. The game utilized the rock band controller for player movement and the battle system. The game was showcased at the Level-Up 2018, student games showcase, at the Design Exchange in Toronto
- Players would explore a maze to search for an exit. At the end there would be a final boss for players to defeat, which would be similar to a rock band song.
- Improved notes sync with music and improved accuracy of input detection so that the battle system was more responsive.
- Created a tutorial for players to get accustomed to the game controls. In addition it would introduce players to the rhythm based battle mechanics.
- Performed user testing with other students to find game bugs and to receive feedback in order to improve gameplay.

Environment Ray Tracer and OpenGL Shaders – C++   **Nov 2017 – Dec 2017**
- Implemented an environment ray tracer. Created different shaders for the local illumination model including Halftone shading, Cell shading, texture mapping, Phong Shading and Gouraud shading.
- Created multiple shapes including planes, spheres, prisms and compound shapes including cones.
- Supported texture mapping and reflections.

Group Finder – JavaScript, React, Node JS   **May 2018 – Sep 2018**
- Worked with peers to create a tool that would help students post their personal projects in order to find like-minded team members.
- Created a Mongo database to hold user data and theirs posts. Ensured that the web page was correctly pulling and posting data to and from the Mongo database.
- Developed front end UI using React for posting and viewing profiles. Collaborated with team members to improve the usability for the interface.

CSP Problem Solver – C#, Python   **July 2017 – Sept 2017**
- Created a constraint satisfaction problem solver in Python. The program takes variables and theirs constraints. The program will provide a valid assignment for each of the variables within the given constraints.
- Implemented a Nonogram puzzle in order to test the performance and correctness of the program. The result of the puzzle would be displayed in a UI using the Tkinter Python API
- Converted the program into C# and improved memory efficiency using lambda functions for the constraints.

References on request