Syed Haroon Alam

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Education

FAST – National University of Computer and Emerging Sciences — Lahore, Pakistan
Bachelor of Science in Computer Engineering — 2007 – 2011

Certification

Udacity
CS291 Interactive 3D Graphics — November 2013

Professional Experience

VastPotato — Singapore
Senior Developer — November 2014 – Present

- Developing core 3D modules for visualization applications.
- Developing 3D medical application for early melanoma detection.
- Developing unity3d plugins and 3ds Max pipeline tools.
- Developing parallel algorithms for GPU processing using CUDA.
- Integrating geometric and graphics libraries in unity3d and OGRE.
- Working on point clouds and depth cameras.
- Programming, debugging and adding new features in applications.
- Coordinating with UI designers, 3D modelers, and animators.
- I am reporting to Technical Director.

Arbisoft — Lahore, Pakistan
Senior Software Engineer — December 2012 – October 2014

- Developed 2D/3D mobile games, medical and visualization applications.
- Worked on game design, game development and game testing.
- Deployment of games and applications on multiple platforms and stores.
- Trained and managed developers in games and 3D development.
- Coordination with Game Producer, UI designers, and 3D artists.
- Participation in client and team meetings.
- I represented the company in hackathons and software conferences.
- I was reporting to CEO and Principal Software Engineer.

Off-Road Studios — Lahore, Pakistan
Software Engineer — September 2011 – November 2012

- Started my career in games and 3D development in a start-up studio.
- Played multiple roles of game designer, lead developer, QA, and technical manager.
- Developed projects for mobile and standalone platform using unity3d.
- Trained and managed team of developers in unity3d.
- Worked closely with concept artists, 3D designers, and sound engineer.
- Worked with business development team on project proposals.
- I was reporting directly to Co-Founders of the company.

IT-Curves — Lahore, Pakistan
Associate Software Engineer — June 2011 – August 2011

- Native android development.
- Upgraded enterprise android application with new functionalities.
- Diagnosed and resolved software bugs and worked on code optimization.

Awards

Outstanding Talent Scholarship, Punjab Information Technology Board, Pakistan
I was awarded full scholarship for my undergraduate studies, worth of 0.5M PKR from Punjab IT Board.

Pakistan Software Houses Association (P@SHA) ICT Awards 2013
My project Scoop-Excavator game stood first in New Media and Entertainment category at the P@SHA awards.

Asia Pacific ICT Alliance Awards (APICTA) 2013
Scoop-Excavator won Silver Medal as runners-up in the e-Learning category at the APICTA awards at Hong Kong.

Pakistan Innovation Foundation, Educational Apps Challenge 2014
Our idea to digitize science practical curricula of secondary schools stood first and secured funding of 6M PKR.

More details: Industry Awards

Technical Skills

Research/Development Interest
Computer Graphics, 2D/3D Game Development, Medical Simulations, Image Processing, Embedded Systems, Virtual Environments, Augmented Reality, Virtual Reality, GPU programming, WebGL, Android, iOS

Software/Libraries
unity3d, OGRE, CUDA, PCL, VTK, CGAL, OpenCV, three.js, SVN, Unity Asset Server, Vuforia, MonoDevelop, Microsoft Visual Studio, Xcode, Familiarity with 3ds Max, Maya, Eclipse, Photoshop

Programming
C#, C/C++, XML, MAXScript, Kinect and Realsense programming, RGB cameras, Familiarity with Shaders, JSON, MATLAB, Java, Android Development, SQL, Microcontrollers, FPGA

Language
Proficient in English, both verbal and written communication

Professional Projects

Automated Skin Imaging | **Technologies**: unity3d, OGRE, PCL, VTK, CGAL, CUDA | **Languages**: C#, C++
Developing a cost-effective medical device for dermatologists and clinicians for early skin cancer detection with cloud-based analysis and diagnostic system. Computations are performed on large-scale 3D scans of patients affected body areas. The key technical features include:

- Front-end development in unity3d for PC, and ogre3d for embedded device.
- CPU/GPU geometric, graphics and image-processing algorithms implementation in C++ and CUDA.
- Real-time point cloud filtering, registration and rendering.
- Procedural meshing of point clouds.
- Depth and RGB camera programming.

Office Block: Link | **Technology**: unity3d | **Languages**: C#, C++, PHP
Developing a virtual office management system for making space, resource and staff management in a 3D interactive environment. The Office Block provides teams the tools necessary to manage every facet of the office in a visual and intuitive manner. The key technical features include:

- User profiles management system with customizable avatar builder.
- Office builder with real-time wall generation implemented using Delaunay triangulation.
- Client/server architecture to load and save application assets at runtime.
- Shader for object selection.
- Rotate, Translate, Scale camera with multi-gestures support.

Scoop-Excavator: Link | **Technology**: unity3d | **Languages**: C#, C++
Scoop-Excavator is an award winning 3D excavator driving game for mobile devices. It is based on excavator's real-world physics and movement controls. It includes advanced graphics, geometric and physics algorithms never used before in an excavator simulation. Scoop is available for iOS and Android. The key technical features include:

- Locomotion system as track movements using touch controls and device accelerometer.
- Virtual and physical joysticks and touch controls for the boom, bucket, and stick movements.
- Real-time mesh deformation for mud digging simulation.
- Users profile management system.
- 14 different levels including a tutorial, job levels, bonus levels, and a sandbox mode.
- Particles, textures and vertex animations.
- RTS camera and animations using Bezier curves.

Virtual Dental Simulator: Link | **Technologies**: unity3d, VTK | **Languages**: C#, C++
VDSim is a 3D dental simulation application developed for orthodontists and medical technologists. It allows users to load and set up complete denture teeth in a three-dimensional virtual environment. This project was deployed at School of Dentistry at Loma Linda University in California. The project was ported from VTK to unity3d to support mobile devices. The key technical features include:

- Maxillary and mandible edentulous casts mounted in a semi-adjustable articulator.
- Control transparency of the record bases and wax rims along with the casts.
- Cross-arch balanced occlusion, lingualized occlusion and a monoplane occlusion.
- Save and load tooth setups on the server.
- Cross-sectional shader for tetrahedral meshes visualization.
- Multiple cameras views.

Yukon Gold: Link | **Technology**: unity3d | **Languages**: C#, C++, XML
It is a 3D arcade style mobile game in which user plays against the mole in a race for the gold, user taps to dig ground that includes rocky terrain, dynamite blasts, and land mine explosions. The key technical features include:

- Procedural environment generation, mesh deformation, and UV mapping for 3D grid digging.
- Shader to occlude particles over scene geometry.
- Serialize/Deserialize new levels using game designer and game generator tool.
- Ads, Analytics and In-App purchases.

ViewDDD: Link | **Technology**: unity3d | **Languages**: C#, Objective-C
It is a 3D viewer application developed for dentists and orthodontists to visualize, explore and share large scientific and medical datasets in an optimized format on mobile devices. The key technical features include:

- Stereo Lithography Parsing.
- Procedural mesh generation and morphing.
- Scene serialization.
- Dropbox integration.
- Camera movements, Pan/Zoom/Tap.

Zombat: Link | **Technology**: unity3d | **Language**: C#
It is a 2D tower defense game for the mobile platform. The key technical features include:

- 4 maps each with 4 stages and each stage has 100-500 rounds based on difficulty selection.
- 2D and 3D story animations for each map.
- 23 different towers and 20 different enemy units each with their different characteristics.
- Enemies AI is implemented using A* pathfinding algorithm.
- Highly rendered frames from 3D models for real-time animation in unity.
- 2D Camera, Pan/Zoom/Tap.

Knee Anatomy: Link | **Technology**: unity3d | **Languages**: C#, PHP
It is a human anatomy application developed for a medical study group to explain human knee structure in an interactive environment.

Play Physics: Link | **Technology**: unity3d | **Language**: C#
Play Physics was developed in collaboration with Arbisoft and Ilm Ideas. We pitched the idea to digitize physics labs and practical curricula in a 3D virtual environment. The business model is a subscription based for private schools and free of cost deployment at underprivileged schools. The project secured one-year funding from UKAID. Play Physics is deployed at various schools in Pakistan. The application was gamified for the rich learning experience.

Sea Flunger: Link | **Technology**: unity3d | **Language**: C#
It is a 2D mobile game developed for iOS and Android. The target audiences of this game are kids. The user taps crossbow plunger to hit the fish and receive gold coins to unlock all the characters. There are icebergs to freeze fish and 3 different plunger options. It's a free-to-play game and includes Ads and In-App purchases.

Squaregatory: Link | **Technology**: unity3d | **Language**: C#
It is a classic arcade game, with a sophisticated twist of physics. The user needs to carefully tilt the device with the help of accelerometer to guide a cube from point A to B but must be moved strategically and quickly, before the square pathway beneath breaks down. It includes 60 unique and challenging stages, grouped into 3 chapters (Collapse, Downfall, and Oblivion) created using XML structure.

Apple Avengers: Link | **Technology**: unity3d | **Language**: C#
It is an action/adventure/platformer game. You play as Fuji, a heroic apple who embarks on a quest through 5 bright and colorful worlds overrun by an army of worms. It is based on the concept of 3D Mario. I worked as a freelancer on the graphic user interface of the complete game using NGUI framework in unity3d.

WeZapp: Link | **Technologies**: unity3d, Vuforia | **Language**: C#
Developed augmented reality application with real-time target creation and video support integration. The application was developed in unity3d with Vuforia as its AR engine. It included XML data structure for the dynamic creation of multiple targets using DAT/XML pairs.

TaxiPlexer: Link | **Technology**: Android | **Language**: Java
It is an enterprise android application, used by drivers to perform taxi trips using Google navigation and performs credit card transactions. I added features for application restrictions, task manager, XML parser and sorted trips lists.

Sensor Controller: Link | **Technologies**: unity3d, Arduino | **Language**: C#
Developed 3rd person view controller in unity3d, connected with physical lights; lights in unity were integrated with photodetectors via Arduino. Uniduino was used for integration with unity3d. Application development included programming enemy AI, camera follow, volumetric lights and particle effects for northern lighting.

WFactor: Link | **Technology**: unity3d | **Language**: C#: A comic based training game for windows platform.

Roll-Up: Link | **Technology**: unity3d | **Language**: C#: 2D endless pinball game developed for iOS and Android.

City Run: Link | **Technology**: unity3d | **Language**: C#: Endless runner prototype developed for mobile devices.

References

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