

Skills

Languages

C, C++, C#, Python, Java

Application Programming Interfaces

Unity, STL, Boost, OpenGL, Qt, XNA

Tools

GDB, Valgrind, WinDbg, Git, Perforce, Visual Studio

Platforms

Hololens, iOS, Nintendo 3DS, XBOX 360

Employment

7+ years of experience in hands-on software development

• WordsAway

May 2016 – Present

Role: Lead Engineerbrainydexter.github.io

Unity/iOS Game

Technology: C#, Unity, Python

- Collaborated with designers as the only engineer on team to develop the entire game from scratch
- Architected Event Aggregator using publisher/subscriber and generics for decoupling modules
- Implemented Trie data structure optimized for space, yielding O(1) word/prefix lookup time
- Implemented Player assist for balancing the game, which may be too hard for some people
- Developed a level editor for designers to adjust the game play & build new levels
- Enabled artists to associate FX prefabs with game events by implementing generic Unity components
- Designed object allocation/reuse by dynamically creating object pools with a tight upper bound
- Procedurally generated letters optimized to use only one sharing material / texture atlas
- Implemented event and component based infrastructure to easily add new levels
- Designed & implemented special powerups based on event aggregator module
- Implemented menu navigation (including popups) by dynamically loading different scenes
- Dynamically updating letters using shaders to reflect score multipliers / selected state

• Cavium Inc.

Feb 2014 – Present

Role: Lead Software Engineer

SDK development

Technology: C, C++, Python, GDB, Valgrind

- Drove the effort to open source SDK & been working on shaping the SDK from version 1
- Fixed memory leaks in the hardware simulator from 1.9Mb to 0 bytes/packet using Valgrind
- Active member of the gatekeeper team to review APIs for performance and memory leaks
- Designed and implemented network topology to simulate single unit, multiple devices to communicate with outside world and each other using TAP interfaces, python and xml config
- Designed the SDK to be device agnostic which allows for a cleaner library distribution to customers
- Implemented plug and play infrastructure for decoupled modules to subscribe to IPC select() calls
- Module owner of the parser block which is responsible for identifying the incoming network packet

• nVidia Graphics

Oct 2012 – Feb 2014

Role: Software Engineer

Graphics Driver development

Technology: C++, WinDbg

- Implemented power management and a tool which deals with hysteresis for Windows Blue & Win8
- Implemented display context switching on the fly between native GPU and nvidia GPU
- Lead initiative to ensure both new and old features are compliant with changing hardware

• WeAreHolidays Pvt Ltd.

Jan 2012 – Sep 2012

Role: Software Engineer

Leisure Travel Web platform (Startup)

Technology: Java, JPA, Maven, Struts 2, Spring 3, MySQL, Guava

- Developed the core API of the product, with performance and design as its key focus
- Product owner for design and implementing service layer, minimising DB hits
- Designed and implemented entity relationships with graph traversal
- Integrating external APIs for rapid prototyping new ideas
- Lead team of 3 people to deliver product with zero codebase and crazy timelines
- Defined agile processes to improve productivity and bring visibility in team performance

- hi5 Networks, San Francisco (USA)** May 2011 – Oct 2011
Role: Software Engineer
Social gaming/commerce platform
Technology: Java, (ASP.NET) C#, WCF, SQL Server 2010
 - Developed commerce portal with a pluggable architecture integrating multiple payment providers
 - Developed end-to-end Credit Card payment system with PCI security compliance
 - Developed Analytics API which enabled game developers to publish events consumed by BI team
 - Following agile processes, consistently delivered milestones on time
- Verizon FIOS, Texas (USA)** Nov 2010 – Apr 2011
Role: Software Engineer (**Contractor**)
Technology: C++, Python
 - Developing framework for inserting ads in HTTP live video streaming on server side
 - Developing product to enable live Video streaming through internet across different devices
 - Prototype adaptive bitrate video streaming media player on android OS
 - Maintain legacy code and integrate it with newly developed product for backward compatibility
- Electronic Arts, NC (USA)** July 2010 – Oct 2010
Role: Software Engineer (**Contractor**)
FIFA 3DS (Nintendo 3DS)
Technology: C++, C#, ActionScript2, Nant Scripts, Python
 - Implemented rendering primitives to support in-game User Interface elements in depth
 - Collaborated extensively with the UI designer to get menu system working in game
 - Managed the build process to support asset pipeline & multiple build configurations
 - Worked closely with other team members to ensure project deliverables are completed on-schedule
- Charlotte Visualization Center, Charlotte (USA)** July 2009 – June 2010
Role: Research Staff
Technology: C++, OpenGL, Qt, CGAL, Boost
 - Developed renderer in OpenGL/C++ to reconstruct terrain from LIDAR data
 - Implemented Marching Triangle algorithm and Delaunay Triangulation constraint over LIDAR data

Independent Projects

- HoloHear (Hololens)** [Video](#)
 - Developed app for people with hearing disabilities to translate words to sign language in realtime
 - The app won first prize amidst 20 teams at the Microsoft SF Hololens hackathon
- Kolor (PC)** brainydexter.github.io
Technology: C++, OpenGL, Qt Framework, Boost, OpenGL Mathematics
 - Designed 3D First Person Shooter with a unique game mechanic of claiming enemies by coloring
 - Developed collada-DAE importer to use 3D models into the game
 - Implemented custom Frame Transformation classes & First-Person Camera
 - Generated Collision detection Bounding Spheres hierarchy information for the imported DAE model
 - Implemented efficient hash-based collision detection/resolution for players and bullets
 - Improved rendering performance using Vertex Buffer Objects
- High Dynamic Range Images**
Technology: Matlab
 - Implemented HDR algorithm to retrieve the original color response function for a natural scene
 - Final image result closely resembles natural scene and lighting conditions as seen with naked eye

Education

University of North Carolina, Charlotte May 2010
 MS in Computer Science (Graphics and Visualization) GPA: 3.8/4.00

U.P. Technical University, Lucknow(India) July 2006
 BS in Computer Science (Software Development)