VRUSHAL NANAVATI

ASSOCIATE TECHNICAL MANAGER

09156191343
vrushalnanavati73@gmail.com
Karad, Maharastra, India, Karad, 415110, India

ABOUT ME

Associate Technical Manager currently working with nCircleTech. Versatile in technologies with proven experience of technical expertise. Pationate, smartworking, confidant and seflt motivated. Having good leadership, people management and negotiation skills. Easy going on interpersonal relations and a good team player.

LINKS

LinkedIn: http://www.linkedin.com/in/vrushal-nanavati

PERSONAL DETAILS

Date of birth
29-06-1995

Nationality
Indian

SKILLS

- C, C++ 14
- Python
- OpenGL
- Web Viewers (Three.Js, Hoops Communicator, Autodesk Forge)
- Plugin Development (AutoCAD, Inventor, Revit, 3ds Max, Maya, Solid Edge, Navisworks, Rhino, Sketchup, Adobe Illustrator)
- CAD And BIM Software Development
- QT, PyQT
- Open Cascade
- Point Clouds (PCL, PDAL)
- Design Patterns
- Bootstrap, CSS, Html.
- Docker
- Javascript
- C#
- WebGL
- GIS (Geographic Information System), GDAL, ArcGIS, VTS Browser
- CAD And Geometry File Formats Interoperability (DGN, DWG, VrMesh, OBJ, STL, GLTF 2.0, GLB, DAE(Collada), XML, JSON, Gmsh)
- Algorithms And Data Structures
- ObjectARX, ODA, Real DWG
- Computational Geometry (CGAL, VTK)
- Software Architecture
- Node.Js, WCF
- AWS
- Development On Linux

WORK EXPERIENCE

ASSOCIATE TECHNICAL MANAGER

NCRICLETECH PVT. LTD | PUNE
APR 2020 - PRESENT

Role and Responsibilities:

1. To solve the technical queries at organization level within different projects.
2. To make sure the project delivery happens on time and on budget.
3. Conduct interviews, hire and train new technical support/IT staff.
4. Delegate technical responsibilities and monitor the progress of projects.
5. Work closely with the project manager during all phases of the development lifecycle.
6. Determine and define clear deliverables, roles and responsibilities for staff members required for specific projects or initiatives.
7. Review all work produced by the development team and ensure code produced meets company standards.
8. Work with the BD team on new prospects and technical evaluation and feasibility of the project.
9. Possess improvements in development and new project evaluations.
10. Performing analyses on CIS efficiency and integration.
11. Research and evaluate hardware and software technology options and weigh the cost/benefit analysis when making large purchases on behalf of the company.

Marital status
Single

LANGUAGES

English
Hindi
Marathi
Gujarathi

12. Meet the profitability targets within different projects.

TECH LEAD

NCRICLETECH PVT. LTD | PUNE
JAN 2020 - JUN 2020

Project Name: Rocket simulation Visualizer.
Team Size :2 Developers, 1 Tester, 1 Team Lead (myself).
Technology : VTS backend, VTS browser.js, javascript, QT, c++, GIS, Data elevation model(DEM), Bing maps, google maps, maptiler tile server etc.
Description : The project was regarding development of a visualization module in a desktop based rocket simulation software, the visualization module needed to be compatible with the web technology. The current desktop software doesn't have any visualization module to visualize the simulated rocket 's trajectory path and detaching parts etc. we built a javascript based visualizer module in a GIS library where we can visualize whole rocket simulation at any geolocation on earth with real-time earth environment around actual launch site.
Challenges : Implementation of visualization module compatible with both desktop and web versions.
Implementation of loading the simulation data specific to each stage and show the trajectory of each stage, their recovery devices etc along with the 3d model in the GIS library.
Setting up the Backend server to host high resolution GIS imagery as well as to process and setup the Data Elevation Model(DEM) to have surface details.
implementations of the different camera views like human eye, camera mounted on rocket following the rocket closely.

Project Name: Autodesk Inventor Plugin.
Team Size : 2 Developers, 1 Tester, 1 Team Lead (myself).
Description : This project was regarding processing the pre-configured recipes (set of rules) in the inventor and preparing the BIM assemblies. Other features including publishing the parts and assemblies to the web platform right from the inventor, the web platform will configure the recipes and map the different objects and assemblies and this recipe we had to process it back in Inventor.
Challenges : One of the challenges was to collaborate with many teams and then manage the faster development alongside. Other challenges were like dependencies on other teams, frequent requirement changes and hence managing our code with modularity so that changes in requirements don’t much affect the code. There were challenges to manage the unmanaged and unsafe codes at some areas of code where it was necessary. Also, we had to implement a separate app domain to manage the dll dependency conflicts with Inventor, we created separate memory space to load the dlls and communicated with it using object serialization and deserialization.
Technology : .Net, C#, WPF, Newtonsoft json, Forge DM Api client etc.

SENIOR SOFTWARE DEVELOPER

PROTOTECH SOLUTIONS | PUNE
JUN 2018 - DEC 2019

Project Name: Integration of RealFlow fluid simulator in Autodesk 3ds Max as a plug-in.
Team Size : 1 Developer (myself)
Description : The project was all about integrating the RealFlow fluid simulation library in Autodesk 3ds Max. RealFlow is a multi-physics fluid simulation library supporting all the liquids, granular substances, or rigid and elastic bodies under a single simulation engine. We had to integrate the simulation library from all the aspects like
- Providing simulation on 3ds max animation timeline.
- Providing the viewport representations of particles, forces, meshes and collider volumes etc.
- Providing viewport manipulators so that users can interactively change the force fields and falloffs from the viewport itself.
- Providing user interfaces to add fluids, emitters, forces, mashers and colliders etc. and

for their specific controlling parameters.
- Providing interface for rendering the meshed fluids. Supporting the simulation baking/caching.
Implementing the toolbars, menu-bars with icons, installer and licensing.
Challenges : The biggest challenge was the plugin architecture to integrate the simulation workflow in an animation software. As in simulation workflow the current state of things is dependent on the previous state whereas in animation every state is independent and can be queried for just a time/frame input. Other challenges include the performance as a meshing module used to create the huge meshes it was difficult to handle efficiently, one more performance related challenge was the update routine, whether to update everything on each frame or just if needed. We implemented matrix decomposition.
Technology : C++, Win32, MFC, 3ds Max SDK, RealFlow library.

Project Name: Feature enhancements in Maxwell renderer plugin for 3ds Max and Maya.
Team Size : 1 Developer (myself).
Description : The project was about enhancing the existing features of Maxwell render plugin for 3Ds Max and Maya, we enhanced and implemented the following features.
Improved the viewport representations of various entities.
Improved the Importer and exporters of Maxwell scene files to support instances and other objects.
Improved the viewport manipulators to allow the user to change parameters of entities from viewport itself.
Supported new additional features from plugins like cloud and network rendering.
Fixed various existing bugs and issues in Maxwell plugins regarding rendering.
Improvements in active shade/interactive rendering and User interface.
Challenges : The main challenge was to understand existing legacy and complicated code and to understand all the rendering concepts etc., dealt with complex memory management issues and object lifetime issues over multiple threads.
Technology : C++, 3ds Max SDK, Maya SDK, Maxwell SDK, QT, MFC, Win32, Python, Mel Scripting (Maya) and max scripting (3ds max).

MEMBER OF TECHNICAL STAFF
PROTOTECH SOLUTIONS | PUNE
JUN 2016 - JUN 2018

Project Name: HOOPS Communicator web viewer feature enhancement.
Team Size :1 Developer (myself)
Description : Improved overall web viewer user experience. Enhanced 3d features for easy handling and interaction with the 3d models. Improved selection and measurement capabilities, model comparison fractures, PMI data manipulation and interaction in viewer, cutting plane enhancements in the viewer, enhanced explode features etc.
Challenges : I had to work at a deeper level with 3D models and UI interaction for measurement and detailed level of selection in HOOPS Web viewer.
Implementation to extract all the PIM data from 3D models with different types and make that user intractable through viewer UI.
Improved the cutting plane implementation to allow random cutting plane generation instead of standard coordinate planes.
Added model comparison feature allowing user to load two models in viewer and compare them visually which was also allowing user to compare them geometrically using transformation one model with respect to other.
Technologies: WebGL, JavaScript, HTML. CSS, jQuery.

Project Name : Part Serializing.
Team Size :1 Developer (myself)
Description : Serializing the part (3D model) with a serial number for 3D printing. The aim was to create a 3D text mesh for given serialization number; orient and translate it to the required position relative to the 3D model and then perform Boolean operation on them, to get a serialized (serial number imprinted) model.
Challenges : I had to deal with the computational geometry algorithms and data

structures.
Implementation to create a 3D text mesh from the vectorized glyph.
Performing Boolean operations on two 3d solids and getting manifold 3d solid as a result out of it.
Removing the non manifoldness in the 3D model and triangulating the polygonal meshes.
Implementation of ray cast logic for 3D solid containment checks.
Getting this project built on alpine Linux and running in docker containers.
Technologies : C++, carve, FTGL, VTK, CGAL etc.

Project Name: Automated Tagging in AutoCAD.
Team Size :2 Developers including me, 1 Tech Lead and 1 Tester.
Description : The project requires creating an AutoCAD plug-in using ObjectARX SDK. The plug-in reads the DWG or PDF files, finds the interested entities based on the user defined criteria. These entities are processed further to make them close and allow them to be extrudable. The plug-in generated tags for these closed elements based on the tag pattern provided by the user. The elements are translated and oriented correctly if required. Finally, a tag report is generated.
The whole process helps in gathering the information of individual drawing elements in the form of tags which helps the construction-based companies in locating the entities correctly on the actual site.
Challenges : I had to negotiate the different drafting styles adopted by different users during drafting the drawings along with the drafting errors.
Finding closed profiles and grouping them required us to implement the Graph algorithm. Also to make open entities closed we had to implement flooding logic with the help of some boundary elements.
I had to deal with complex drawings that contained more than 10 millions of drawing elements, hence had to adapt memory and performance efficient coding structures.
Implementation of batch process for multiple DWG/PDF file processing for tag generation.
Technology : C++, ObjectARX, PugiXML.

FREELANCING

A STANDALONE APPLICATION INTERFACE FOR 3D ANIMATION AND VIEWING.

Developed a OpenGL based cross Platform 3D standalone application.
Following are the features of the Standalone.

1. Model loading supported files are Obj, Stl. Gltf, dae (colladda) etc.
2. Interactive 3D viewer and Grid lines.
3. Object Selection mechanism.
4. Axis Tripod Gizmo for transforming the viewport objects.
5. 3D keyframe animation support we can play-pause the animation with an animation timeline UI.
6. FPS/frame rate control.
7. Model tree support and node based hierarchy.
8. Supported Skeletal animation loading and viewing.
9. Trackball, orbit and FPS camera implementations.
10. Support to add various primitive objects and lights in the viewport.
11. Advanced materials like Blinn Phong and Physically based material shaders.
12. Support for Environment maps for realism.
13. Supported Image Based Lighting (IBL) for photo realism.
14. Improved shading based on Anti-aliasing and ambient occlusion.

15. Different UI themes and OpenGL based UI.
16. Realtime post-processing effects like bloom.

AWARDS AND ACHIEVEMENTS

1. Letter of appreciation from the directors.
2. Employee of the quarter award at ProtoTech (1st June 2017).
3. Employee of the quarter award at ProtoTech (28 March 2019).
4. Extra Mile of the qurter award at nCircleTech.
5. 6 times winner of Trainer of the month award at nCircleTech.
6. 1st prize winner in debate competition.

EDUCATION

BACHELOR OF TECHNOLOGY

TATYASAHEB KORE INSTITUTE OF ENGINEERING AND TECHNOLOGY, WARANANAGAR, KOLHAPUR | KOLHAPUR

2016

University : Shivaji University Kolhapur

Marks : 70.30 %

H.S.C

SGM CCOLLAGE KARAD. | KARAD

2012

University : Shivaji University Kolhapur

Marks : 80.83 %

S.S.C.

SHIVAJI HIGH SCHOOL, KARAD. | KARAD

2010

University : Shivaji University Kolhapur

Marks : 82.55 %