**Objective**

Apply my strong mathematical, graphics and programming skills to a research and application development position working with cutting-edge technologies to complement the innovative goals of the organization.

**Professional Experience**

**Current project**

***Independent software developer*** August 2017-current

* Developing open source tool C++ tools
  + Compiler test framework for testing if C++ code build with warning –currently Windows only
  + Developing a stats algorithm library using C++ 20 concepts and C++ 17 parallel stl
* Developing online ordering and supply management system
  + Use Boost Breast and Microsoft’s C++ Rest SDK to interface with various REST APIs back-ends to check on product information and product pricing
  + Store information in a generic Database interface
* Developing a trading system
  + Creating a smart option contract generator that will allow people to created control between two product as well as set custom quantity using the eos.io blockchain
  + Developing a template ledger class for keeping track of changes is market data over time and verify history is correct current there are two version one C++17 or earlier and one C++20 or later using concepts.
  + Developing a strategy engine for making orders based of market data feeds with TCP/IP socket connect and using modern C++ multithreading tools
  + Evaluating using operating systems with Minix and FreeBSD currently using FreeBSD as it has better support for modern C++ (C++14 and later) features but Minix might had better potential
* Developing Graphic Rendering system
  + Creating an Animation rendering engine using modern C++ with plugins for Vulkan, Direct3D and OpenGL starting with a Windows UI and later going to a Linux/Mac

**Stenograph, LLC.** Downers Grove, Illinois March 2021 – March 2022

***Software Developer***

* Update code base to at least C++ 14 standard with Object Oriented Analysis and Design principals.
* Found and fix code locking issue with multithreading environment
* Developed and SQLite modern library for encrypted database and an encrypted viewer with Object Oriented Programming features to create data structures.
* Added web socket support to send audio voice sample as JSON messages to a remote engine.
* Setup and supported Linux Servers

**Riskbone, LLC.** Chicago, Illinois July 2016 – August 2017

***Software Developer***

* **Created ICE-POF drop copy-Wrote an application that listen and stores ICE position and fill data into real time drop copy and parse ICE Fix messages**
* **Update code base to using C++ 11 and 14**
  + Used std::thread over POSIX threads for newer code as std::thread preserves type parameters thus guaranteeing more working correct code
* **Developed Trading backend**
  + Parse csv file and used the it calculate positions, balance, margin, etc
  + Uses TCP/IP socket to connect to different exchanges.
* **Market predictor contest backend**
  + Loaded stat from CME ftp data file and using C++ and stored the parsed data into database for historical backup and used for scoring
  + Created an API to generate and modify game
* **CME Bitcoin Index Feed:** 
  + Developed a C++ backend application that read CME’s bitcoin feed and publishes in to any listening applicationsprocession JSON data

**Birlasoft** February 2016 – April 2016

***Software Developer-C++ consultant to GE***

* **GCC code Migration-Help to bring code for GCC 3.2 to GCC 4.4.7**

**Eagle Seven, LLC.** Chicago, Illinois June 2014 – October 2015

***Software Developer for a commodity trading firm***

* **C++ Unit Testing: Wrote tests and executed to cover core gateway objects framework and individual gateway feeders and order routers targeting both Windows and Linux**
  + Created a testing framework to test the behavior of various gateway feeders and order routers using standard C++11 features and using binary and FIX4.x protocols simulating TCP/IP sockets
  + Identified and developed tests to cover over key items in the gateway framework
  + Object Oriented Analysis and design to design objects used to setup test
  + Developed a machine learning and testing framework using C++11, 14 and Parallel STL to find patterns in timer data and MySQL, MariaDB, and PostgreSQL
  + Created a testing department to cover over key gateway items

**Advanced Manufacturing Systems, Inc**. Bensenville, Illinois June 2004 - June 2014

***Project Lead, Software Developer***

* **GerbMaster: 2D Gerber editing CAD/CAM application for electronic manufacturers**
  + Coordinated development team activities to design, development and test CAD/CAM editing application utilizing C++ as a base coding language; continued to maintain the application and provide updated features to the tool based on individual client needs using Object Oriented Analysis and design and Object-Oriented Programming design
  + Developed functionality to allow GerbMaster to better utilize C++ multi-core technology using Intel TBB, Microsoft Parallel Patterns Library, and Agents Library increase the program’s performance
  + Developed a Design Rule Check (DRC) feature which requires majority of processor utilization; this is a complex application which automatically checks production data across 100+ design rules to check for potential manufacturing defects using a simple user interface
  + Created a scripting module using the Lau C API for minimal overhead and integration into GerbMaster and developed links between Gerbmaster’s C++ code and Lua scripting API
  + Developed the capability to interpret and import ODB++, DXF and BMP file formats using classes written in C++ (STL)
  + Analyzed the benefits of converting GDI to DirectX/Direct3D or OpenGL for using these technologies for 2D drawing using C++
  + Evaluated and architected the integration of new features into GerbMaster; includes requirement discussions with clients, determining how the solution technically fits in with the current system’s architecture, development activities and testing
  + Work in maintaining MFC, message map and multiple document framework for the user interface
  + Using customer feedback, increased the software’s usability compared to marketplace competitors
* **ProPCB: ERP (Enterprise Resource Planning) application to manage the PCB manufacturing process**
* Updated ProPCB platform from using legacy .Net 1.1 technology to .Net 3.0 and .Net 4.0 technologies to allow for compatibility with newer operating systems that connected to a MySQL database
* **Network Administrator: Set up servers and security for the organization to meet business needs**

**College of DuPage** Glen Ellyn, Illinois January 2014 – May 2014

***Lecturer for the Electronics Technology Department***

**Technical Skills**

**Programming Languages**

|  |  |  |  |
| --- | --- | --- | --- |
| * C/C++/Visual C++ | * Visual Basic.NET | * C# | * Java |

**Scripting Languages**

|  |  |  |
| --- | --- | --- |
| * Lua | * Python | * JavaScript |

**APIs, Protocols and Other Software Technologies**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * Intel TBB | * MS Parallel Patterns Library | * MS Agents Library | * XML | * COM |
| * C++ AMP | * OpenGL | * DirectX/ Direct3D | * SQL | * XHTML |
| * HTML | * C++ 11,14.17 20 STL | * Boost Libraries | * ActiveX | * C++/CLI |
| * FIX | * mdp3, impact, cmi2,emdi, … | * .Net Web Services | * TCP/IP | * CSS |
|  |  |  |  |  |

**Application Experience**

|  |  |  |  |
| --- | --- | --- | --- |
| * Visual Studio 2010-2019 | * Intel Parallel Studio XE | * PostgreSQL | * MySQL |

**Operating Systems**

|  |  |  |
| --- | --- | --- |
| * Windows XP-10 * Linux - Fedora, Ubuntu, Debian | * FreeBSD * UNIX | * Mac OS X * Minix 3 |

**Technical Projects**

* Utilized artificial intelligence-machine learning tools such as decision trees, neural networks and Bayesian learning to automate prediction process, thus enabling a machine to provide intelligent responses and implemented a neural network using C++ to learn based on historical training data to help automate a computer system’s behavior based on current condition observed by the system
* Created a 3D particle system simulation of a predator-prey system using DirectX-Direct3D and C++ to analyze a predator-prey system reaction in a three dimensional environment
* Utilized C++ and OpenGL to build a rendering package that does wireframe, hidden-line, constant, faceted, Gouraud and textured shading. Extended the rendering package to perform animation using Euler angles, and smoother quaternion rotation for object rotation and perform Linear, Hermite, Catmull-Rom and TCB splines for motion interpolation
* Created web services using C#, ASP.Net, Visual Studio 2005, 2008, 2010 and other Microsoft-based web technologies to create an interactive website and perform data processing within a web-based environment and communicate with an external database
* Created simulation programs using Monte Carlo and random number generating techniques to simulate a server various scenarios using C++.
* Working on a test benchmarking framework to develop GSL guidelines for WG21 SG 14

**Technical Organization Membership**

* ISO C++ WG 21 SG 14-C++ Game Development and Low Latency Study Group
* Chicago C/C++ User group
* CPPCON 2015,2016, 2017 Conference Attendee

**Education**

DePaul University, Chicago Illinois

***Master of Science in Computer Science,*** 2006

DePaul University, Chicago Illinois

***Bachelor of Science in Computer Graphics and Animation (Developer Concentration),*** 2004