INNA WILLIAMS
USA Citizen
6957 N. Ashland Blvd, Chicago, IL,60626
innawillims@gmail.com 813-966-0816

- Overall 10+ years of experience working as an Application Software Engineer , Computational Software Engineer and Data Scientist
- Experience working on Data Science and Statistical Data Modeling Applications
- Experience working on Computational Science Applications
- Experience working on Spectral Analysis Applications
- Experience working on Linear Optimization Programming
- Experience working on Time Series Applications
- Experience working on Predictive Analytics and Machine Learning Applications using R, Python, SAS, C++, C# and Matlab
- Experience working on some Database Applications.
- Experience working on Gaming Applications, Statistical Game Design and Game Play Simulations

Skill Set:

Languages	C++, Python, R, SAS, Matlab, C# ,QT
IDE	Pycharm/Spyder/Anaconda Envs,Jupyter Notebook,Jupiter Lab,RStudio,MS Visual Studio,QT Creator
Scripting Languages	Java script, JQuery, XML, PHP
Databases	SQL Server2000, Informix, MySql
Virtual Environment Tools	VMWare, VBox
Version Control Tools	Git, P4th, Svn,Clear Case
Software Engineering	Agile, Waterfall
Operating Systems	MS WINDOWS, LINUX, UNIX

Objectives:

Seeking the position in fields of Computational Science ,Mathematical Science Data Science and Statistics to create software tools and visualizations.

Professional Experience:

client: **March,2,2020 - Present (On Hold Covid-19)**
Serco Alion Services & Technology Corp
through the services of Bentley Global Resources LLC
Data Scientist

Description: Analysing Data for Army Market research using AI/ML/NLP

Programming Languages : Python/R/Matlab/NLP/NLTK python library
Responsibilities:
Parsing JSON files.

Sentence Segmentation
Finding Noun Phrases
Creating Objects.
Analyze semantic
Creating machine learning models.

client:

Depaul University, Chicago, IL **September,2019-January,2020**

Research Assistant

Description: Solving Partial Differential Equations

Programming Languages: Python/Fenics library

Platforms: Linux,Anaconda Environment

Responsibilities:

- Creating PDE , initial conditions and boundary conditions
- Implementing code to solve Partial Differential Equations
- Creating Visualizations using Paraview 3D

client:

Telos Data LLC **September,2018 - April,2020**

Description: Consulting and training services

Programming Languages: Python, R, SAS
Platforms: Linux,Anaconda Environment

Responsibilities: Statistical Analysis of the datasets and Visualizations.

client:

Sensors Inc, Saline, MI
Research and Development
Computational Mathematics and Statistics Software Engineer March 1, 2016 - July 1, 2018

Description: Developing innovative Gas Measurement Solutions
Programming Languages: Python/NLTK python library ,STL C++ 11/Armadillo Library/R/Matlab//C#.NET/Javascript/Jquery/OOP

Platforms: Linux,Anaconda Environment . MS Windows ,OS Linux/ Ubuntu 12.

Tools: MS Visual Studio

Communication Protocols: TCP/CAN

Responsibilities:

- ML application,Data modeling, Data Mining,Statistics Preprocessing, PCA/PCR/Cross Validation,K-Fold Cross Validation, Curve fitting,Supervised, Unsupervised and Reinforced ML,,ARIMA Fitting, Baseline Correction,Data Smoothing, Filtering.

- Design and Implementation of algorithms for spectral analysis for chemometrics for an advanced sensors technology.
- Analyzing and Data mining of the Large Data Sets obtained from car emission and system calibration.
- Parsing,Analysing and visualizing debug files to find the failures in the system using NLP.

client:

IBM, LITTLETON, MA
Sr. Computational Mathematic Software Engineer August 10,2015 - January,1, 2016 (contract)

Description: Working on Outlook/Domino/MAPI/Client /Server Application
Programming Languages: STL C++11/OOP/COM/Win 32 APILibrary/C#/R
Platforms: MS Windows
Tools: MS Visual Studio 2013
Algorithm Used: State Machine or Deterministic Push-down Automata.

Responsibilities:

- Analyzing binary xml data between server and client email application
- Creating Wbxml parser and decoder to convert Wbxml to xml textual data in a human readable
- xml format.
- Analyzing ,parsing and tokenizing natural language logging data for Time Zone Component , for email application , email calendar and other transactions .
- Creating custom objects to store them for the future view. Creating unit tests for all created new classes.

client:

L3 Communications, Ayer, MA November 3, 2014 - June 19, 2015(contract)
Sr. Software Engineer
(contract)
Description: Design and Development Of the GUI and middleware for Machinery control monitoring systems that are used on the ship. Several Monitors on a ship communicate through wireless network to middleware and middleware Communicate to the ship's control unit.

Programming Languages: STL C++11/OOP
Platforms: Linux, Windows
Tools: QT Creator,VC++/MFC, GLG Builder, Vbox,Eclipse, MS Visual Studio 2012

Responsibilities:

- Design and Implementation of GUI Application for machinery control monitoring systems.(HMI)
- Integrate the GUI with middleware.
- Create logging files to test every message that comes between GUI and middleware.
- Analyze logging files for errors and crushes.

client:

EMC Corporation - Franklin, MA **February 11 2014 – November 2014**
Sr. Software Engineer - (contract)
Description: Working on Advanced Robotic Diagnostic Application to discover Firmware and Hardware health
Programming Languages: C#/XML/OOP/Data Structures/
Platforms: Windows 7
Tools: MS Visual Studio 2010/2012/2013

Responsibilities:

- Developing Framework layer to Diagnose Firmware and Storage Processor (SP) functionality through the Devices Discovery Connected to the SP.
- Creating the libraries to Diagnose Firmware for different Storage platforms.
- Design steps for QA to test the new feature.

client:

Dell Innovation Services- Peoria, IL **March 2013 – December 2013**
Sr. Software Engineer
(John Deere contract)

Description: Working on GPS Tracking Application , Telecom /Wireless with mobile device that is installed on John Deere Tractor

Programming Languages: C++/OOP/Data Structures/Design Patterns
Platforms: Windows 7 **,** Linux
Tools: QT creator, MS Visual Studio 5, VMWare

Responsibilities:

- Developed Communication Library used for communication between two embedded devices for telematics.
- Create Message between cloud server and mobile telematics device installed on tractor
- Develop test to test created messages.
- Test messages using mobile touch screen
- And analyze log files for error ,crashes and inconsistencies.

client:

Beckwith Electric- Largo, FL **February 2012 - March 2013**
Engineering Department
Research and Product Development
Software Engineer

Description: Working on SCADA Application
Programming Languages: C#/C++/OOP/Data Structures
Platforms: Windows 7 (32/64 bits)
Tools: MS Visual Studio 2010
Protocols: Modbus , Modbus TCP, RS232, RS485

Algorithms: RS5 encryption algorithm.

Responsibilities:

- Developing a communication Library that interfaces between the HMI and GUI Windows Form Application.
- Developing libraries for parsing XML, for compress, decompress,encrypt and decrypt files.
- Working on HMI devices that are used for power current and voltage control. HMI devices connect to the computer that runs Windows Form Application through USB HID device, Serial Port and Ethernet Port. Library that was implemented had three different connections using Standard Communication Protocols Modbus and Modbus TCP

client:

Pasco-County Clerk and Comptroller Office **April 2011 – Jan 2012**
IT department
Programmer Analyst

Description: Developing applications for county database storage,retrieval and updating.Analysing json data. Data mining from large textual old databases.

Programming Languages: C#.NET /VB.NET/SQL/Javascript/PHP/XML/Jason
Platforms: MS Windows
Tools: MS Visual Studio 2010

Responsibilities:

- **Project 1**: Designing and implementing the algorithm for converting textual databases into SQL

  databases. Implementation includes reading large textual files(>1GB), analyzing and matching data and loading data into SQL database

  Languages used C#.NET /VB.NET/SQL. Subtask : Creating Crystal Reports , saving and scheduling on Enterprise server.

- **Project 2:**

  Design and Develop Server/Client/ Web Application. Server side has been developed using the PHP/SQL/Informix database. PHP language has been used to connect to the Informix database. Parameters received from the client side from the JavaScript form. Parameters has been used to compose SQL string

  to post them using POST. PHP script used GET to get posted parameters. Then data has been encoded into a JSON using PHP and POSTED on a temporary encoded web page. Then the client would get the data from that page and decode it and display on a WEB GUI using grids and other GUI controls

client:

5000ft – Reno, Nevada **May 2008 - April 2011**

Software Engineer

Description: Working on Statistical Design, Modeling and Simulation of WAN Gaming Applications, WireLess Gaming Applications.

Programming Languages: C, C++, C#/VC++/Python/OOP/OOD methodologies/Data Structures.

Platforms: MS Windows , Linux, Android

Tools: MS Visual Studio, custom tools for visualization

Responsibilities:

- Analyzing xml and json datasets between the server and the clients.
- Statistical Design Games using Excel.
- Development of the Video game Applications for Electronic Gaming Device (Casino Slot Machine) and for Mobile Device (Client Server)**Project 1:**
- Design mathematical models for 4/5 reel strip gaming applications with main game and bonus games. The main elements included the line pays, scatter pays or both.
- Mathematical modeling included : the real strips design with the number of elements on each reel, according to a chosen play game design number of lines, game bonuses; all game combination calculated according to statistical theory; calculated game standard deviation, variance and game volatility;
- 5 pay-tables created using Excel spreadsheets.

Project 2:

- Design mathematical models for the game with independent events with the same probability of occurrence using Binomial distribution probability function.
- Design mathematical models for the game with dependent events with various probability of occurrence using Hyper-geometric distribution probability function.

Project 3:

- Design and full software development cycle of Embedded Applications for a future installation on a Casino Gaming Electronic device.
- Main and bonus game play simulation, history screens simulation and animations simulation. Programming language and platform used C/Linux/P4th/; State machine;
- Connecting the debugger to a software and hardware to debug application until the game will pass the gaming requirements.
- Using SAS,MS Vista Software program to send the poll signals to a game application on the Linux system to check the controlling response from the gaming application.

Project 4:

- Developing Subscriber/Publisher project using ActiveMQ for solving interoperability problem for message communication between applications that using different programming languages such ...

client:

Gaming Laboratories International- Las Vegas, NV **Oct 2007 – May 2008**

Regulatory Industry

Test Engineer

Responsibilities:

- Testing hardware and software for electronic gaming devices against technical and jurisdictional requirements.

EDUCATION & TRAINING

Depaul University, Chicago, IL,
Master Of Science in Applied Mathematics,
Applied and Computational Mathematics Concentration, Sep, 2018 - April,2020

Mathematical Modeling Project **September,2018-November,2018**

- Research Hermit crabs problem
- Project includes a state diagram, transition matrix for Markov Chains.
- The steady state matrix found to determine absorption probability distributions.
- The expected length of the crab calculated by calculation the fundamental matrix using Maple and Matlab programming languages.

Partial Differential Equations research project: **January,2019-March,2019**

- Schrodinger Equation with constant potential,

Statistical Methods Using SAS research project **January,2019-March,2019**

- Data Science/ Machine learning project with data obtained from the United States Department of Transportation and include flight details between the years 1994 and 2016.
- Descriptive statistics test, non-parametric Wilcoxon test , Anova test, T-tests,Dwass, Steel, Critchlow-Fligner (DSCF) multiple comparison analysis test, which is based on pairwise two-sample Wilcoxon comparisons are performed in order to observe any differences between the seasons and their flight delay percentages.
- Software used SAS Studio

Monte Carlo Simulations project. **April, 2019 - June,2019**

- Monte carlo methods in pricing options using combined Vasicek model with the VarianceGamma model and R programming language

Numerical methods Projects **April, 2019 - June,2019**

- Research of conjugate gradient method in solving positive definite nxn linear systems and sparse large systems.
- Programming Language used Matlab
- Data Science project: Singular Value Decomposition for cluster analyses.

Advances Linear Algebra **September,2019-November,2019**

- Matrix Analyses

Statistical Data Management **September,2019-November,2019**

- Data Science projects using R, SAS,Python,SQL,Machine learning

Operations research **January,7,2020 - March,19,2020**

- Linear Programming Optimization Project
- Interior Point Optimization Method Predictor Corrector method Implementation.

Applied Time Series/Forecast: **January,7,2020 - March,19,2020**

- Estimation and fitting of ARIMA, and transfer-function
- stochastic models for the purpose of analyzing and forecasting stationary,
- non-stationary, and seasonal time-series data.

Comprehensive exams passed:

Numerical Methods	92%
Mathematical Modeling	95%
Probability And Statistics:	95%

Current GPA 3.98

UNR- Reno, NV
Bachelor Of Science in Computer Science, 2001-2006

Software Engineering Project, 2005

- Sports Betting and Winning Simulation. C++/UNIX

Senior Project Computer Science/Biochemistry

- Protein Pipeline processing.
- Project written for Biochemistry research department.
- Reading the protein sequence and further processing of the sequence.
- In case of an existing sequence in the database displaying the 3D image of the protein structure.
- Programming language used QT/C++ on UNIX and MS Windows XP Platforms.

Publication, January,2005, team 9
https://www.cse.unr.edu/~sp2005/
Inna Williams, Nicholas Lyle, and Kanwal Brar
Project name Automn
https://www.researchgate.net/profile/Inna_Williams3/publications

Somecode and projects are here: https://github.com/nogia/git_repo