Professional

Overview

Engineer: José Enrique Hernández Martínez

Title Degree: Engineer in Computer Sciences

**I. - GENERAL DATA**

1. -Name and Last names: José Enrique Hernández Martínez.

2. - Sex: X M; \_\_\_\_\_\_F

3. - Date of birth: March 20th, 1987

4. - Center of Work: Provincial delegation of BANDEC Pinar del Río

5. - Position: Administrator of Net

6. – Political Position: \_\_ PCC; \_\_\_\_\_\_\_UJC

**II. - PROFESSIONAL FORMATION**

7. - Academic title: Computer Sciences Engineer

I entered in the University of Computer Sciences in the year 2005. There I received subjects such as:

- Mathematical I - IV

- Physical I - II.

- Programming I - IV.

- Algebra.

- Algorithmic.

- English I - V.

- Graph for Computers.

- Artificial intelligence.

- Operating systems.

- Telecommunications I - II.

- Computer security.

- Engineering of Software.

I imparted classes of English II, English IV and English V, as student assistant of those subjects since my first year of University until I graduated. During my formation like Engineer in Computer Sciences I began to carry out my first programming projects to give answer to my computer restlessness and as starting point for my later development in the branch. Some of the more relevant software developed in solitary during this period are:

**Console Game**

**Of type:** Console Application.

**Programming Language:** C++, using SDL Libraries

**Named:** Coastguard

**Description:** Lively Console Game developed using SDL that simulates a coastguard ship that should avoid that the enemy’s ships come closer too much. It is a levels game, in each level the difficulty increases.

**Practical use:** Year Project of Video Games Subject.

**Console Game**

**Of type:** Console Application.

**Programming Language:** C++, using SDL Libraries

**Named:** High Road

**Description:** Lively Console Game using SDL that simulates a car that goes for a freeway in which over times goes on, several enemy cars that tried to collide with him, appear, to which the one will avoid. This game doesn't need user interaction, the idea it is to create an environment where the computer faces itself.

**Practical use:** Year Project of Artificial Intelligence Subject.

**Application**

**Of type:** Desktop Application.

**Programming Language:** Visual C++, using OpenCV and OpenAL Libraries

**Named:** Wild\_Player

**Description:** Music and Videos reproducer with which several effects can be achieved mainly videos mixture in time of reproduction (real time).

**Practical use:** This reproducer achieves video effects that make more interesting its screen reproduction in parties and activities. It can besides other things: to achieve transition effects among videos, to superimpose images of several videos during oneself reproduction, to locate in a corner of the live video captured images from a camera.

My graduation thesis is titled: "Component for estimating the position and orientation of objects in scenes of the real world". This component is named VInterax. VInterax is a library of computer vision developed in C++, designed for the development of applications of virtual reality that requires an interaction with the user in real time. Its main functionality is being able to register the position and orientation of an object in an image or sequence of images starting from 4 non coplanaries points that the system identifies by means of colors detection. In which refers to computer vision, this library of functions gives solution to problems like the tracking of objects and the colors detection.

VInterax is guided to computer graphics programmers and to its final users, in this matter offers a series of additional functionalities devised to offer to the developers the necessary facilities to be able to implement in a simple way an interface that allows the communication between the final user and the system.

Several programming fields are directly related with the development of this component. But the most outstanding, given the direct bond with its implementation and its complexity are:

- Computer Vision.

- Images Processing: Reception and storage, processing and correction.

- Tracking (pursuit) of Objects.

- Detection of colors.

- Computer Graphics.

- Computational Geometry.

- Animation.

- Artificial intelligence.

- Recognition of patterns.

- Learning.

Once I graduated of Computer Sciences Engineer, I continued developing applications mainly for people needed for computer solutions to facilitate the office work or application for optimization and organization of business processes. Inside this group they are two relatively big systems such as:

**Application**

**Of type:** Desktop Application

**Programming Language:** Visual C++, SQL (for the handling of the databases)

**Named:** Wild\_Schedule

**Description:** Wild\_Schedule is an Educational Schedule Agent, a tool to create, to upgrade and to consult the educational schedule in an educational institution. It has as additional advantages besides the automation of the process of administration of educational schedule: the prevention of incoherencies by means of a validations system (for example Wild\_Schedule don't allow to program classes for a group or professor at the same time when another activity has been programmed, as well to assign a local for a class that is being occupied already by another class, etc.), to avoid the common errors that are commented day by day in the in the educational institutions related with activities schedule. It has a system of searches for filter that allow you to obtain varied information further on that the simple schedule consultation (for example: the frequency of certain class for certain group or professor, if a local is busy at certain time, etc.), Wild\_Schedule presents an architecture that allows the organization of the student schedule in profiles (that can be educational, and other extracurricular activities as sport, cultural, etc.) that allows to locate in time and space practically any activity.

**Practical use:** To manage the educational schedule in the Medical Sciences University of Pinar del Río.

**Application**

**Of type:** Desktop Application.

**Programming Language:** Visual C #, SQL (for databases handling)

**Named:** Easier

**Description:** Easier is a system that carries out the administration of the accounting in one or several gastronomic entities. It is guided to the gastronomy, but due their flexibility and their parametric architecture it adapts to almost all sales of products and benefit of services environments. Basically it is a tool to facilitate and to speed up the process of making of the main documents that are generated in most of the trade entities, gastronomy or benefit of services, as well as their storage and consultation.

Main functionalities:

Making of documents: the elaboration of the documents is the central task of this software. The same one consists on indicating to the system the entrances, outputs, movements or transfers carried out in one day. Everything is achieved, obeying the same principles and regulations that follow the workers that at this moment carry out this function manually. With a simple and practical interface this software is prepared to give answer to all the situations that are presented day by day, applying common and valid procedures inside what is legally established, that transforms it into a flexible and at the same time secure system. The result of this whole process is a reliable and stable accounting, lacking of errors and incoherencies, besides totally consultable and auditable.

To support this functionality several tasks were also implemented like to consult, to save, to erase and to print the generated documents, besides other support functionalities to facilitate the entrance and modification of data in the system, configuration of the connection with the database, calculator, as well as a system of validations to prevent incoherencies.

System of reports: the system of reports uses technical data mining to obtain punctual countable information that allows seeing the behavior of different variables which define the real economic state of the entity. Inside the most important sub-tasks they are: cash flow and cash flow presage (cash flow presage is a cash flow that uses the behavior of a cash flow from certain period of time to predict mathematically the balance between entrances and exits of cash during next months, it is thought to help with the taking of decisions, and with the feasibility of investments and bank loans). It also offers help for visualizing the accounting even more: several graphics of lines and bars which show the relationship of variables as: revenue-expenses, entrance-exits (of goods) and the cash flow during a certain period of time.

**Practical use:** To manage the accounting in the Bar-restaurant "The Pines" (Rpto Hnos Cruz), it also is starting to being used in two new gastronomic cooperatives in the city of Pinar del Río.

**Application**

**Of type:** Desktop Application.

**Programming Language:** Visual C #, file kind information storage.

**Named:** EasyManagement

**Description:** EasyManagement is a software application for managing projects. Its main achievement is to accomplish the management of several projects information (qualitative and quantitative) in an structural ways, easy to reach and understand, to make easier the decision making process. It also offers some other features to increase the usability even more.

**Practical use:** sold to a private architect’s business in Havana, to manage, mainly the payment records, of clients and employees, control several parameters of the financial status of the projects they’re working on.

**Some Other**

I also have knowledge and works carried out in sound edition and videos edition, using professional tools such as Fruity Loops and Adobe Suite. I have also carried out my own programs to support the video edition, taking advantage of my experience in image processing, such as:

**Application**

**Of type:** Application Desktop.

**Language of Programming:** Visual C++, using the Library OpenCV

**Named:** Border\_Drawer

**Description:**  Border\_Drawer is an application to apply an effect in particular in a video sequence. The effect transforms the normal image of the video been reproduced in an image where only is observed the line of the objects edges, that gives the impression of being observing a cartoon. The use of this program saves great quantity of time and physical effort compared with the traditional methods, generally used to create the same effect. **Practical** use: It was used during the edition of a video clip, in a sequence that was wanted to make seems as cartoon.

**III. - PROFESSIONAL EXPERIENCE**

- In the Credit and Trade Bank (BANDEC)

My professional life began in the bank Institution BANDEC where I work at the moment, specifically in its territorial delegation of Pinar del Río, Cuba. There I administer the local net of computer services (Intranet) and the countable net of this company. Inside the functions that I carry out there can be enumerated:

- To watch and to assure the readiness, integrity and confidentiality of the countable and personal information of my users.

- To give solution to the problems and computer situations that affects the users in their labor acting.

- Installation of new computer systems.

- Maintenance and optimization of the Operating system yield in the work stations.

- To guarantee the security of the net before wicked programs and computer attacks.

- To look after the execution of the computer policy of net security.

- To create and to maintain backup systems that guarantees the readiness of the information after a contingency.

Under my direct responsibility I have to more than 200 users in a net of 178 work stations. Under my indirect responsibility I have around 375 more, distributed in the 15 branches that BANDEC has in the province of Pinar del Río. In total they are more than 500 users in an Intranet of around 400 machines where besides the countable systems that the bank needs to offer their services of attention to the population and to the companies, and the automatic cashiers system, offers services of national sailing and internet, chat, mail and ftp.

The time that I take working has been good to knowledge in practice and to provide me experience in the great scale network administration, inside the abilities and or knowledge put in practice in my current position are the following ones:

- Design, deployment, maintenance and repair of computer networks. Installation and configuration of equipment like Routers, Switches, and Modems.

-Integration of wired nets to phone access nets and optic fiber nets.

- Installation, maintenance, and administration of servers Windows Server 2003 to Windows Server 2008 and configuration of DNS and DHCP services as well as the policy of the Active Directory.

- Work experience with network traffic monitoring and control tools.

- Work experience with server virtualization tools, as well as their backup and recovery.

**At Work**

Under my programmer condition I have also developed my own tools to facilitate me the work or as a request of my superiors:

**Application**

**Of type:** Service of Windows.

**Programming Language:** Visual C++

**Named:** Wild\_Copier

**Description:** Windows Service that copies a file or a directory automatically from a location in a network or in the local computer to another, at a predetermined time and with a frequency also predetermined (daily, weekly, or at certain hours). This service leans on a desktop application for its configuration.

**Practical use:** helps me to have up-to-date several resources in the network of common use for the users of the bank: as manuals and shared documents, which was necessary to go copying them manually from sub-network to sub-network.

**Web Site**

**Programming Language:** C # (asp.net platform), SQL (for databases handling)

**Named:** Control de Activos Fijos Tangibles

**Description:** Web Site where authenticated users can consult to add and to modify the state of the material means of their respective branches according to their level of accesses and privileges.

**Practical use:** The Provincial Delegation of BANDEC in Pinar del Río uses it to have perseverance and control of the material means in an automated and centralized system, with the rising comfort, speed and efficiency that it generates.

**Service of Windows**

**Programming Language:** Visual C #

**Named:** Restarter

**Description:** Service to automate the task of restarting a certain service in a certain period of time.

**Practical use:** Some processes that help to the countable system of the bank those overloads, the Restarter every so often it restart them eliminating the overload of the same ones so that doesn't commit the service.

**Console Application**

**Programming Language:** Visual C #

**Named:** WsusOnline

**Description:** Application which allows to run, Window’s security patches, in several work station of the network, simultaneously.

**Practical use:** To keep our network secure, we need to run the Window’s security patches, every month in each one of the more of 400 work station in the province, in person, (since we don’t have internet access). This application, using some features of Kaspersky Administration Server, do that job for us, and leave a report for consulting if it’s needed.

**Web Site**

**Programming Language:** C #( asp.net platform) MVC pattern

**Named:** Virtual Bandec

**Description:** Portal web where users can consult different bank indexes of their respective branches or at global level during certain period of time, by means of a system of reports.

**Practical use:** The users those for example can know the number of a certain type of operations in a certain range of time without necessity about carrying out this task manually.

**Application**

**Of type:** Application Desktop

**Language of Programming:** Visual C++

**Named:** File\_Browser

**Description:** Application Desktop that looks for files repeated in a directory and it gives the possibility to be able to erase the repetitions according to an approach predetermined by the user that can: to be to erase the files of smaller or bigger size or those of creation less or more recent etc.

**Practical use:** helps us to clean space in disk, personally I use it for folders with big content volumes, as installers, programming projects, music or videos folders. Where due to the diversity of the extensions of the files, and the fact that for example the same video or the same song can appear in several places and with names seemed makes very difficult searching and eliminate them with traditional methods.

**My main abilities inside the Computer science's many fields are:**

* The programming. Inside this:

Programming languages:

I dominate and I have serious works carried out in:

* + C++ and Visual C++ Language
  + C # and Visual C # Language, works in Asp.Net.
  + SQL Language (database).

Domain and works of smaller relevance:

* + Visual Basic language.
  + PHP Language.

Knowledge but non position in practice:

* + Phyton
  + Java

Work with Libraries of Code:

* + OpenCV (serious works of a considerable reach).
  + OpenAL
  + SDL
  + Bootstrap (for the design web)

IDE use experience:

* + Visual Microsoft Studio (2008-2013)
  + Borland CBilder
  + Qt-SDK

Fields in those that I have development experience:

* + " Graph for Computer:
    - Geometry Computational.
    - Structure of Space Data.
    - Animation 3D.
  + Vision for Computer:
    - Captures and prosecution of images.
    - Detection of colors.
    - Tracking (pursuit) of objects.
  + Virtual reality:
    - Mixed reality.
    - Increased reality.
  + Artificial intelligence.
  + Database
    - Architecture and design of databases.
  + Web programming.
    - Web design.
  + Developed Applications:
    - Library of functions, for the development of applications of Virtual Reality.
  + Applications Desktop:
    - Tools installable and portable.
    - Agents of Information.
  + Web Sites.
  + Services of Windows.
  + Games of Console.
* Development Methodologies:
  + Scrum with XP using TDD
* Code version control:
  + Tortoisehg
  + GIT source code management system with Visual Studio
* Network Administration:
  + Network Administration for Windows and Novell.

Software:

* Installation, configuration and maintenance of Servants
* Installation of Operating systems.
* Work with monitoring tools.
* Work with virtualization tools.
* Network security.
* Hardware:
  + Design and assembly of wired nets.
  + Assembling of teams (computers).
  + Computer security.
* Professional practice:
  + Video and Images Edition:

Work with Adobe Suite Package.

* Audio Edition:

Work with the tools:

Fruity Loops.

Gold Wave.

Sound Forge 9.

* Operating systems:

Microsoft Windows.

* Foreign languages:
  + English.

**Today Project**

In now days I’m working (after work) leading an small team of programmers we’re developing a system to magange the inversion process, intented to reach every aspect of an inversion, such as planning, executing, control and evaluation. At the time we’re finishing the main module Inversion Budget (planning and execution). To build this system we use:

* Visual Studio 2013 with 4.5.1 .net framework and VS Resharper tool for develop.
* C# 4 as programing language.
* A modular Desktop application for WPF. Using Metro desing (Windows 8 apparence).
* Architectural Desing: our closer aproach to N-Layer architecture Domain Dirven Desing.
* Development enviroment Pro Agile .Net combining Scrum and Xp methodologies.
* NuGet.Tools:
  + Unity.3.5.1, (for dependency injection, and interception)
  + EntityFramework 2.0 for database management for deplayment time, and Db4Object for development time.
  + Prism.5.0.0 for modular interface treatment.
  + Visual Studio Test Unit, for testing.
  + Tortoisehg-2.5.0 tool for code version control.