JEAN-PHILIPPE BOIVIN   contact@jpboivin.me

TECHNICAL KNOWLEDGE :

✦ Languages : C++, C#, C++/CLI, Java, Python, Lua (basic)

✦ Graphical User Interfaces : Xamarin.iOS, Qt, Windows Forms, Swing

✦ Databases : MySQL, SQLite, MongoDB (basic)

✦ Version Control Systems : Git, Perforce, Subversion

✦ Game Engines : Unity3D

✦ Concepts : networking, communication protocol, client-server, peer-to-peer, file format, software, REST web service, cryptography, key exchange, certificate, parallelism, SIMD

EDUCATION :

Master of Science in Software Engineering   2018 - 2019
Université de Sherbrooke

Baccalaureate in Computer Engineering   2013 - 2017
Université de Sherbrooke

Diploma of Collegial Studies in Mathematics and Computer Science   2011 - 2013
Collège de Bois-de-Boulogne

PROFESSIONAL EXPERIENCE :

Intern — Programmer   2015 - 2019
Ubisoft Montreal - Technology Group - Storm Multiplayer Engine   *(16 months, 4 internships)*
- Redesigned the protocol stack (R&D)

- Developed a video chat system
  * Video capture and rendering
  * Conversion between image formats (using libyuv, Accelerate or SSE2/AVX2 intrinsics)
  * Bilinear downscaler using OpenMP
  * Encoding and decoding of the video stream to transmit it over a network
  * Cross-platform: Windows, macOS, iOS, Android, PlayStation 4, Xbox One

- Developed features for the engine's voice chat
  * Audio capture and playback modules for macOS, iOS et Stadia
  * Speech synthesis (text-to-speech) module for Windows, PlayStation 4 and Stadia
  * Speech recognition (speech-to-text) module for Stadia

- Developed a .NET wrapper (C#) for the Storm SDK (C++)
- Developed a sample game and mobile companion using Storm.NET and Unity3D
  * Cross-platform: Windows, macOS, iOS, Android, PlayStation 4, Xbox One

- Ported the 2D rendering library to Vulkan for Stadia

Intern — Programmer   2014 - 2015
Ubisoft Montreal - Technology Group - Quazal Rendez-Vous   *(8 months, 2 internships)*
- Developed a REST API (Platform as a Service) for Rendez-Vous
  * Developed new features and APIs (history, login, etc)
  * Integrated the encryption keys obtention through a secured API (RSA, AES, X.509 certificates)
  * Deployed and tested the web service in several environments
- Developed a distributed architecture for online services (Quazal Rendez-Vous)
  * Added the registration of nodes in Zookeeper

EDUCATIONAL PROJECTS :

Developed interconnected smoke detectors   2018
Master of Science in Software Engineering
- Development in C++1z (w/ CMake)
- Master-nodes architecture running on rPI (using MQ-2 and MQ-9 sensors)
  * Discovery protocol using UDP (Networking TS)
  * Auto-configuration of nodes using TLS (LibreSSL w/ kqueue and epoll)
  * Periodic sensor's data transmission and commands transmission using MQTT

Developed a Laser Tag game on a Raspberry Pi   2014
Baccalaureate in Computer Engineering
- Development in Java (Apache Tomcat for the web interface)
- Client-server topology over UDP
- Encryption of the communication (Blowfish)
- Streaming of the players' body cameras in realtime using VLC
- SQLite database

Developed a RPG with a multiplayer part   2013
Diploma of Collegial Studies in Mathematics and Computer Science
- Development in Java (with Swing for the graphical user interface)
- Client-server topology over TCP/IP
- Key exchange to encrypt the password (RSA)

PERSONAL PROJECTS :

Developed a port of Grand Theft Auto: Vice City for Unity3D   2016
- World, cars (without wheels), characters (partially animated) can be imported as prefabs
- Parsers for Vice City file formats (COL, IDE, IPL, IMG, ADF, SFX, etc)
- Importers for Vice City models (DFF) and animations (IFP)
- Importer for Vice City metadata (gta_vc.dat) – loading the whole world inside Unity

Developed a server emulator of the MMORPG « Conquer Online 2.0 »   2008 - 2012
- Several iterations in C#, one basic iteration in C++ using Qt4
- MySQL database
- Client-server topology over TCP/IP
- Encryption of the communication and passwords (Blowfish, CAST-128, RC5, XOR cipher)
- Key exchange to encrypt the communication (Diffie-Hellman)

INVOLVEMENTS :

Vice-president of Information Technology   2010 - 2011
Yawok (during the Junior Achievement program)