Alejandro Echeverría

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Education

Ph.D., Computer Science, 2012, Pontificia Universidad Católica de Chile; GPA: 7.0 of 7.0
    Advisor: Miguel Nussbaum

M.S., Computer Science (Honors), 2009, Pontificia Universidad Católica de Chile; GPA: 6.9 of 7.0

B.S., Computer Engineering (Honors), 2008, Pontificia Universidad Católica de Chile; GPA: 6.1 of 7.0 (top 5 %)

Technical Skills

Extensive experience developing desktop applications with .NET using C# (6 years).

Extensive experience developing desktop user interfaces for .NET using WPF and MVVM pattern (5 years).

Extensive experience with object oriented programming languages: C++ (5 years), Java (6 years).

Extensive experience developing desktop user interfaces: Java Swing (4 years).

Extensive 3D graphics application experience using Direct3D (3 years), OpenGL (4 years) and WebGL (2 years).

Programming experience in embedded devices: C, assembly x86 and assembly PIC.

Client side web development experience: HTML5, Javascript and CSS.

Sever side web development experience: PHP and ASP.Net.

Database design experience: MySQL, PostgreSQL and SQLServer.

Scientific programming and data analysis experience using MATLAB and Python.

Professional Experience

Akselos, 2015-present
    Software Engineer

BOAMine, 2012-2015
    Senior Software Engineer and Principal Researcher

    Lead developer of DeepMine, an innovative strategic mine planning tool, currently being used to operate some of the largest open pit copper mines in the world (C#, WPF).

    Principal researcher of DeepMine's dynamic programming algorithm for mine planning (C++).

    Lead engineer of DeepMine's 3D graphics engine for visualizing geological and mining information (Direct3D, SlimDX, HLSL).

Microsoft Research, 2011
    Research Internship at Machine Learning Group

    Development and research of web-based application designed to study the effects of different activities and games on memory and information retention, tested within Microsoft Research (HTML5, Javascript).

Pontificia Universidad Católica, 2009-present,
    Adjunct Instructor

    Computer Graphics, 2009 - present

    Computer Architecture, 2010 - 2013

    Introduction to Programming, 2009 - 2012

    Researcher

    Lead researcher on project focused on scientific discovery and visualization using virtual reality headsets. Project included the development and evaluation a molecular docking application, and a medical imaging platform, 2013-present.

    Lead researcher on project focused on collaborative educational games for learning physics in multiple platforms. Project included the development and evaluation of a custom augmented reality environment for school classrooms, 2009-2012.

Games for Learning Institute, 2009-2012,
    Researcher

    Developing learning games to practice basic geometrical thinking skills (HTML5, Javascript, SVG graphics).

CREATE lab @ NYU Steinhardt, 2010,
> *Researcher*

>> An augmented reality learning environment for New York City, used to teach physics to high school students (C#, XNA).

Woodtech M.S., 2008-2009,
> *Software engineer*

>> Developing calibration software for truck load measurement using laser range-finders (Java, Swing).

>> Developing novel user interfaces for managing truck load measurement using laser range-finders (Java, Swing).

Independent Developer & Consultant, 2005-present,

> **Woodtech M.S.**, 2010-present

>> A tool for automatizing the update process of the Logmeter line of products (Java).

> **MIDE UC**, 2009-2010

>> A Virtual OS and Office suite applications, that included: a file explorer, a slide editor, a spreadsheet editor, a document editor and a browser. The system was used as the government official assessment tool for evaluating IT skills of recent graduate teachers in Chile (C#, WPF).

> **Eduinnova**, 2009

>> Multiple mice application to support a one-to-many environment for co-located collaboration (C#, Multi-point SDK).

> **Santiago Fire Department**, 2008

>> Project manager, developing a prototype of a GPS locating system for firetruck tracking and map visualization, including: a mobile component for information gathering (C#, .Net Compact Framework), a web server for gathering data and displaying it in real-time on a map (C#, ASP.Net, Google Maps), and an extension for a GIS mapping tool (C#, ArcGIS) .

> **AURUM S.A.**, 2007-2010

>> Developing software extensions for GIS mapping applications (C#, ArcGIS).

> **CETIUC**, 2007

>> Developing web services for banking transactions (JBoss).

Selected Publications

«*The Atomic Intrinsic Integration Approach: A structured methodology for the design of games for the conceptual understanding of physics*» (2012)
Alejandro Echeverría, Enrique Barrios, Miguel Nussbaum, Matías Améstica, Sandra Leclerc
Computers & Education, 59 (2), 806-816.

«*Exploring different technological platforms for supporting co-located collaborative games in the classroom*» (2012)
Alejandro Echeverría, Matías Améstica, Francisca Gil, Miguel Nussbaum, Enrique Barrios, Sandra Leclerc
Computers in Human Behavior, 28 (4), 1170-1177.

Honors and awards

Teaching Excellence Award, 2014, School of Engineering, Pontificia Universidad Católica de Chile.

Doctoral Studies 2009-2012 Scholarship, CONICYT, Government of Chile.

Best student of Computer Engineering, Class 2008, Department of Computer Science, Pontificia Universidad Católica de Chile.

Honors Tuition Scholarship, 2003, Pontificia Universidad Católica de Chile.

Certifications

Interactive 3D Graphics Course Certificate of Completion, 2013, Udacity.

Introduction to Complexity Course Certificate of Completion, 2013, Santa Fe Institute.

Other Skills

Languages: Spanish (native), English (advanced).