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## Pedro Vicente

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GitHub: <https://github.com/pedro-vicente>

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### Technical Summary

- Software programmer, with extensive experience in writing and debugging of software.
- Main personal achievements:
  1. HDF Explorer. A reader and visualization program for the HDF format, a data format used worldwide by the scientific community. HDF is supported and used by NASA.
  2. Word Build. An educational word puzzle game available for iOS, Android and Windows operating systems.

### Summary of Qualifications

- Large experience in development of software, including its life cycle of requirements, implementation, testing, documentation, maintenance and user support.

### Technical Expertise

<b>Languages and APIs</b>	C, C++, Objective-C, JavaScript, Java , JSP, Ruby on Rails, FORTRAN, Python, Pascal, Basic, Perl, ASP, PHP, SQL, MySQL, C#, HTML, HTTP, XML-RPC, XML, Torque, OpenGL. Qt framework, Cocos2D-x game engine.
<b>Software Systems</b>	GNU development tools, Microsoft Visual Studio, Mac XCode. UNIX, Microsoft Windows, Mac OS.
<b>Specialties</b>	Scientific data formats (HDF5, netCDF libraries). Game development using the Torque and Cocos2D-x game engines.

## Professional Experience

2009-2016



External contractor for the Oak Ridge National Laboratory, TN

*Technologies:* C++, Qt, HDF5. Development of HDF5 software for the Spallation Neutron Source (SNS). Improved performance of SNS software by use of HDF5 in comparison to the NeXus format. SNS is an accelerator-based neutron source facility that provides the most intense pulsed neutron beams in the world for scientific research and industrial development.

2012-2014



University of California at Irvine. Scientific Programmer.

*Technologies:* C, Perl, Qt, netCDF, HDF5. Developed and designed APIS for support for hierarchical datasets for the netCDF operators (NCO).



University of Illinois at Urbana-Champaign  
Curriculum and Instruction

*Technologies:* Torque Game Builder, a scripting language to deploy games in Mac OS and Windows. Developed educational mathematical learning software and games for elementary school children.

2009-2011

**HDF group, NCSA (National Center for Supercomputing Applications), Champaign, IL**



2001-2009

Developed APIs and applications for the HDF5 data format. Designed and wrote the High Level API for HDF5, part of the HDF5 library, and several tool applications for HDF5: h5diff, an application that lists differences between two HDF5 files and h5repack, an application that writes a HDF5 file from an original HDF5 file, modifying some of its metadata. Responsible for maintenance of this software and user support in help desk, mostly for NASA users. My responsibilities at the HDF Group included: testing daily software builds, writing build release note, executing automated test scripts, collecting logs and reproduction steps for bugs, finding root cause of issues, create and update test cases, and write test code to validate features.

Funding by NASA.  *Technologies:* C, C++, FORTRAN, Java, shell scripting.

## **Conferences**

Chapman University Symposium on Big Data and Analytics. Chapman University, Orange, CA, April, 2013

NOBUGS 8 at Park Vista Hotel, Gatlinburg, TN, 2010

HDF-EOS XIV Workshop: Champaign, IL. September 28-30, 2010

HDF-EOS IX Workshop, San Francisco, November 30 - December 2, 2005.

HDF-EOS VIII Workshop, October 26-28, 2004, Aurora, CO, USA.

HDF-EOS VI Workshop, December 3-5, 2002, S. Francisco, CA.

HDF-EOS V Workshop, February 2002, Landover, Maryland.

HDF-EOS IV Workshop, September 19-21, 2000, Landover, Maryland.

HDF-EOS II Workshop, September 21-23, 1998, Landover, Maryland.

## **Education**

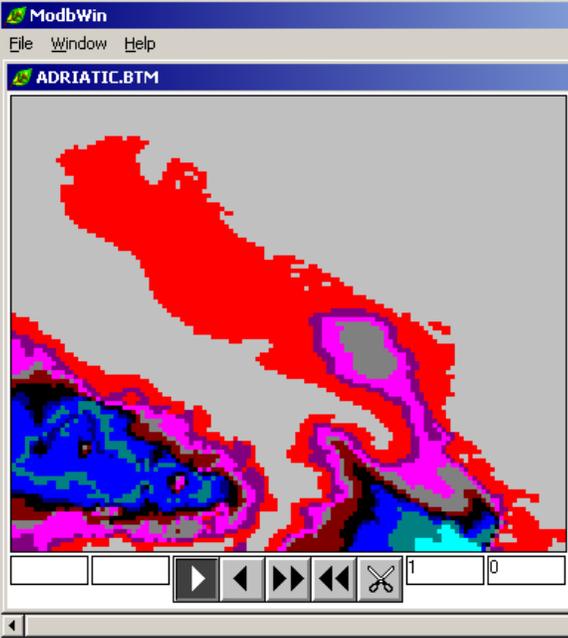
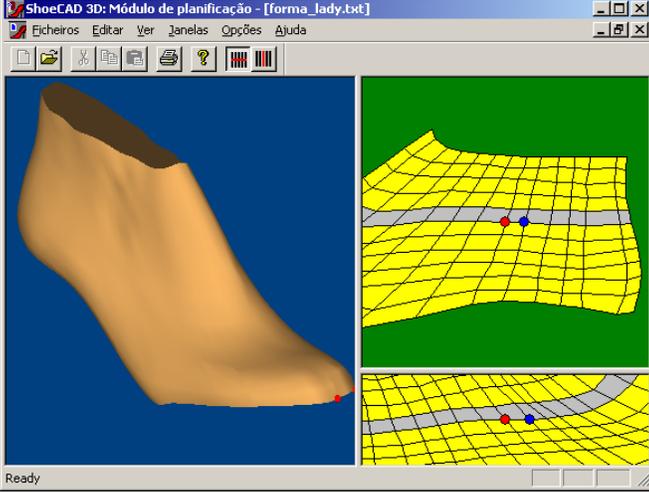
FCT/UNL (New University of Lisbon, Portugal)

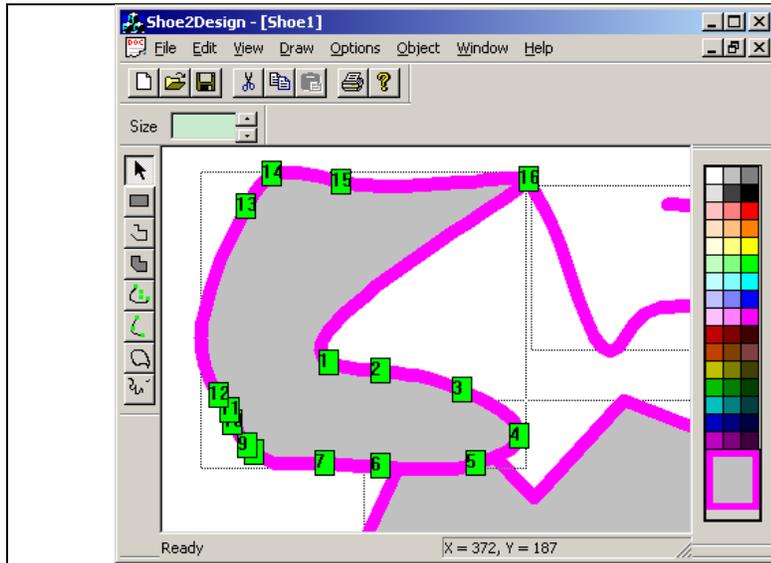
B.S . in Environmental Engineering

IST/UTL (Technical University of Lisbon, Portugal)

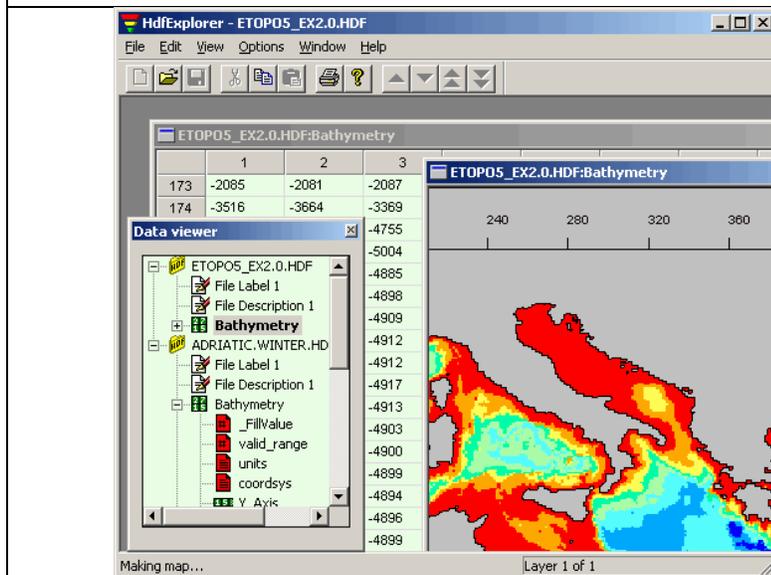
M.S. in Ecology, Management and Modeling of the Marine Resources

## Projects

 <p>The screenshot shows a software window titled "ModbWin" with a menu bar containing "File", "Window", and "Help". Below the menu is a sub-window titled "ADRIATIC.BTM" which displays a map of the Adriatic region. The map is color-coded, with red representing land and various shades of blue, purple, and green representing water depths. At the bottom of the window, there is a toolbar with several icons, including a play button, a left arrow, a right arrow, a double left arrow, a double right arrow, and a scissors icon. There are also two small input fields next to the arrows.</p>	<p>Graphical interface for the MODB (Mediterranean Oceanic Data Base) project, in Liege, Belgium. Developed in C++. Microsoft Visual Studio.</p>
 <p>The screenshot shows a software window titled "ShoeCAD 3D: Módulo de planificação - [forma_Jady.txt]". The menu bar includes "Ficheiros", "Editar", "Ver", "Janelas", "Opções", and "Ajuda". The toolbar contains icons for file operations, editing, and viewing. The main area is split into two panels. The left panel shows a 3D model of a shoe, rendered in a light brown color. The right panel shows two flattened 2D views of the shoe's sides, represented as a yellow grid with a blue and red dot indicating a specific point on the surface. The status bar at the bottom left says "Ready".</p>	<p>Flattening of parametric 3D surfaces. This software uses Open GL as a rendering engine. In the picture, on the left, a 3D display of a shoe is displayed. On the right, the flattened 2 sides are shown.</p> <p>Developed in C++. Microsoft Visual Studio.</p>



2D Draw program. This program draws several primitives (rectangles, splines, lines) and uses a vectorial display format. Developed in C++. Microsoft Visual Studio.



HDF Explorer is a data visualization program that reads the HDF, HDF5 and netCDF data file formats.

Data is first viewed in a tree-like interface, and then optionally loaded and visualized in a variety of ways.

HDF Explorer features include fast access to data, grid, scalar and vector views. It also allows exporting your data either as a ASCII text file or a bitmap image.

HDF Explorer is available at <http://www.space-research.org/>



In 2009-2010 I am developing educational mathematical learning software and games for elementary school children at the University of Illinois at Urbana-Champaign. Developed with Torque game engine.



Word Build, a word puzzle game, available on the Apple store, Google Play store and Windows App store.

Developed with Cocos2d-x game engine.

iPhone version

<http://itunes.apple.com/us/app/word-build/id467303721?mt=8>

Android version

<https://play.google.com/store/apps/details?id=org.cocos2dx.wordbuild>

Windows app version

<http://apps.microsoft.com/windows/en-us/app/word-build/faa4a945-0a2f-410d-b6f5-0d1d20cbd498>

