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# Teodor Petre Cioaca

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Nationality: Romanian  
Date of Birth: 17/10/1985

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## Education

- 11/2012 to date Politehnica University of Bucharest, Bucharest, Romania**  
Pursuing a PhD degree in Computer Science and Engineering - area of research is focused on multiresolution representation of terrain surfaces using signal processing and discrete differential techniques. Expected graduation: 2015.
- 09/2008 – 06/2010 Jacobs University Bremen, Bremen, Germany**  
MSc degree within the Smart Systems graduate program. The topics of interest and study are Computer Graphics and Visualization, and Robotics and Autonomous Systems. This is reflected in the content of the Master's Thesis which is focused on "Feed-rate optimization for jerk-bounded smooth paths for milling applications". Graduated with a total GPA of 1.22, where 5.0 is the minimum and 1.0 is the maximum.
- 09/2008 – 09/2008 University of Bucharest, Bucharest, Romania**  
License/Diploma degree in Mathematics and Computer Science  
License Thesis: "Deformations as geometric modeling techniques"  
Graduated with a score of 9.91 out of 10 possible.
- 09/2000 – 06/2004 "Radu Greceanu" National College**  
Baccalaureate Diploma  
Graduated with a score of 9.83 out of 10 possible.

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## Practical Experience

- 10/2012 to date Ubisoft Entertainment SRL Bucharest**  
Intermediate Programmer - Gameplay feature optimization (mathematical operators, Physics-based secondary motion animation tweaking, etc.)
- 07/2011 – 10/2012 Esesnys Software SRL, Bucharest**  
Software Engineer - Graphics programming for an Air Traffic Control Simulator Solution: 3D graphics, Mathematics, Physics, Rendering.
- 06/2011 – 07/2011 Gameloft Romania**  
Tools Programmer - Involved in ad-hoc game resource download management solutions.
- 04/2011 – 06/2011 Zenergy SRL, Bucharest, Romania**  
Software Developer - Game programming tasks involving 3D game engine functionalities.
- 09/2010 to date Jacobs University Bremen, Visualization and Computer Graphics Lab**  
Research Associate. Developing an adaptive feed rate algorithm for CNC micro milling.
- 09/2009 – 09/2010 DFKI (German Institute of Artificial Intelligence), Bremen, Germany**  
Research assistant in the field of Robotics. The activity was focused on forward kinematics, inverse kinematics, workspace computation, collision detection and collision avoidance for a two-armed intelligent robot in a real-time environment.

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## Research and Project Experience

- 09/2009 – 09/2010 SemProm Project for DFKI Bremen**  
Semantic product management platform. The tasks revolved around DFKI's anthropomorphic robot and required searching and implementing solutions to deal with manipulation of rigid objects.
- 03/2009 – 05/2009 Advanced Robotics/Lukas - Kanade Feature Tracker - Jacobs University Bremen**  
Semester project with the main task of analysing the efficiency of a feature based image registration algorithm, possible improvements and various implementations.
- 03/2009 – 05/2009 Advanced Graphics/Animation of Chewing - Jacobs University Bremen**  
Semester project with the main goal of animating the process of chewing. A physically based approach has been developed with special attention given to numerical stability and accuracy by employing methods from discrete variational calculus and particle Physics.
- 03/2009 – 05/2009 Advanced Machine Learning/Echo-state networks on the edge of chaos - Jacobs University Bremen**  
Semester project. The dynamics of a neural network reservoir have been traced while varying the spectral radius of the reservoir. SVD analysis was employed to detect possible regions with rich dynamics.
- 09/2008 – 01/2009 Information Architectures/Brain Database System - Jacobs University Bremen**

Designed an architecture for a brain database system in accordance with the needs of the neuroscience community using a raster database management system and computer graphics and visualization methods. The building blocks for a unified architecture have been set and future development possibilities have been outlined.

**10/2007 – 12/2007 Elements of a physics engine - Mechanics and Stochastic Simulation Courses**

Series of projects concerned with simulating the movement of rigid bodies and massless particles along surfaces, collisions and ballistic simulations using stochastic considerations.

**10/2006 – 05/2007 Virtual Reality Programming Techniques, University of Bucharest**

Geometric modelling of a molecular editor and viewer for organic molecules based on rigid body transformations. Visualization done using C++ and OpenGL. The project was part of an e-Learning platform for Chemistry lessons at high-school level.

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### Extracurricular Activities

**03/2003 – 05/2004 Romanian Cultural Center - Slatina - Romania**

Student. Main activities included basic musical studies and getting accustomed to a stringed instrument.

**09/2000 – 12/2007 Romanian Electronics Club - Slatina - Romania**

Member. Tasks included the study of various electronics modules and development of improved versions, as well as experimental prototypes of sensor driven oscillators.

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### Skills and Achievements

**Languages:**

**Romanian:** mother tongue      **English:** fluent  
**German:** working knowledge      **French:** basic knowledge  
**Spanish:** basic knowledge

**PC Knowledge:**

Programming under MS Windows and Linux operating systems.  
OpenGL/GLSL - intermediate to advanced  
OGRE library and shading languages (Cg, GLSL, HLSL) - experienced  
MATLAB, SciLab, Octave - research level  
GIMP, Adobe Photoshop, Corel Draw, Inkscape, Blender 3D, Eagle, Propellerhead Reason - hobby level  
Oracle SQLPlus, MySQL, RasDaMan System - intermediate  
Basic PowerPC architecture knowledge  
LaTeX scientific typesetting

**Programming:**

C/C++ - experienced  
dotNet languages (C#/C++/CLI) - intermediate  
Objective C - intermediate  
Nvidia CUDA GPGPU - hobbyist  
Java/JSP/Servlets - hobbyist  
PHP/Codeigniter and other frameworks - experienced  
PROLOG - academic level  
Visual Studio/Borland C++ Builder IDEs  
QT GUI Programming (C++)  
Perl (scripting)

**Further Education:** CISCO CCNA1/CCNA2 networking basics modules. Graduated with a score of 100% and 95%.

**Workshops /**

**Conferences:**

Conference on Applied and Industrial Mathematics - "Students' perception on linear and exponential growth", October 2007, Mioveni, Romania

Applied Electronics Workshops - Centrul de Creatie pentru Tineret Bucuresti September 2011, February 2012: Arduino and PCB design basics using Eagle

**Publications:**

Pablo Kaluza and Teodor Cioaca. "Phase oscillator neural network as artificial central pattern generator for robots." Neurocomputing. 2012. (accepted)

**Interests:**

Computer Graphics, Electronics, song writing