
Alexandru Eugen Ichim

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Education

- 05/2013 - **École Polytechnique Fédérale de Lausanne, Switzerland**
07/2017 PhD student in the Computer Graphics and Geometry Laboratory under the supervision of Prof. Dr. Mark Pauly. Focusing on digital human reconstruction and performance capture. Graduated with distinction.
- 09/2011 - **École Polytechnique Fédérale de Lausanne, Switzerland**
04/2013 Master of Science in Computer Science. GPA: 5.7/6 (on a scale from 1 to 6) in 92 ECTS credits.
Thesis: *RGB-D Handheld Mapping and Modeling*, supervised by Dr. Radu Rusu and Prof. Dr. Mark Pauly, received maximum grade of 6.0
- 09/2008 - **Jacobs University, Bremen, Germany**
06/2011 Bachelor of Science in Electrical Engineering and Computer Science, specializing in Computer Science. GPA: 1.30 (on a scale from 5 to 1) in 202.5 ECTS credits.
Thesis: *Path Planning in 3D Unstructured Environments*, supervised by Prof. Dr. Andreas Birk, received maximum grade of 1.0
- 09/2004 - **"Gheorghe Vranceanu" National College, Bacau, Romania**
07/2008 Graduated in top 1% in the Mathematics, intensive Computer Science Class.

Publications

Passthrough+: Real-time Stereoscopic View Synthesis for Mobile Mixed Reality

Gaurav Chaurasia, Arthur Nieuwoudt, Alexandru-Eugen Ichim, Richard Szeliski, Alexander Sorkine-Hornung
Proceedings of the ACM on Computer Graphics and Interactive Techniques 2020

Phace: Physics-based Face Modeling and Animation

Alexandru-Eugen Ichim, Petr Kadlecek, Ladislav Kavan, Mark Pauly
ACM Transactions on Graphics, Proceedings of SIGGRAPH 2017

Reconstructing Personalized Anatomical Models for Physics-based Body Animation

Petr Kadlecek*, Alexandru-Eugen Ichim*, Tiantian Liu, Ladislav Kavan, Jaroslav Krivanek
ACM Transactions on Graphics, Proceedings of SIGGRAPH ASIA 2016, (*joint first authors)

Building and Animating User-Specific Volumetric Face Rigs

Alexandru-Eugen Ichim, Ladislav Kavan, Merlin Nimier-David, Mark Pauly
ACM SIGGRAPH / Eurographics Symposium on Computer Animation, SCA 2016

Patient MoCap: Human Pose Estimation under Blanket Occlusion for Hospital Monitoring Applications

Felix Achilles, Alexandru-Eugen Ichim, Huseyin Coskun, Federico Tombari, Soheyl Noachtar, Nassir Navab
International Conference on Medical Image Computing and Computer Assisted Intervention, MICCAI 2016

Temporally Consistent Motion Segmentation from RGB-D Video

Peter Bertholet, Alexandru-Eugen Ichim, Matthias Zwicker. arXiv 2016

Dynamic 3D avatar creation from hand-held video input

Alexandru-Eugen Ichim, Sofien Bouaziz, Mark Pauly
ACM Transactions on Graphics, Proceedings of SIGGRAPH 2015

Semantic parametric body shape estimation from noisy RGB-D sequences

Alexandru-Eugen Ichim, Federico Tombari
Robotics and Autonomous Systems, IEEE RAS 2015

A modular framework for aligning 3D point clouds - registration with the Point Cloud Library

Dirk Holz, Alexandru-Eugen Ichim, Federico Tombari, Radu B. Rusu, Sven Behnke
Robotics & Automation Magazine, IEEE RAM 2015

The Jacobs Robotics approach to object recognition and localization in the context of the ICRA'11 solutions in perception challenge

Narunas Vaskevicius, Kaustubh Pathak, Alexandru-Eugen Ichim, Andreas Birk
IEEE International Conference on Robotics and Automation, ICRA 2012

Reviewer for multiple Computer Graphics, Computer Vision and Robotics publications:

SIGGRAPH, SIGGRAPH ASIA, Eurographics, Pacific Graphics, SCA, IEEE VR, CASA, RAS, RAM, ICRA

Practical Experience

- 11/2023-
to date **Google AR, Zurich, Switzerland**
Tech lead for a number of efforts building towards the next generation of digital humans for XR applications.
- 08/2017-
11/2023 **Meta Reality Labs, Zurich, Switzerland**
Computer Vision Engineer (Staff Software Engineer), working on the next generation of AR/VR technologies.
- Shipped Mixed Reality system features to millions of users in Quest 1 & 2 VR devices: 6DOF Inside-Out Tracking, Passthrough, Playspace Scan, Space Sense.
- Currently tech lead for a team of engineers and highly XFN collaborators working on enabling avatar fashion in the Metaverse. Covering topics such as: human representation and reconstruction, skinning and garment physics simulation, geometry, material and appearance representation of garments, UX & rendering.
- 07/2016 -
10/2016 **Adobe Systems, Inc., Creative Technologies Lab, Seattle, USA**
Research intern working on a novel physics framework for enforcing inter-layer relationships (e.g., contact, example-based) for artist-directed multi-layer 2D animation. Supervised by Dr. Jovan Popović and Dr. Danny Kaufman.
- 03/2012 -
to date **Open Perception, Inc., Point Cloud Library**
Research scientist and software project maintainer, involves offering user support on the mailing lists/forums of the project, solving administrative issues such as keeping the build farm running, fixing code bugs, announcing news, advertising the project etc. Administered various code sprints and the Google Summer of Code 2012 and 2014 programs. Tasks involve interfacing the organization with the sponsors and coordinating the student selection and project work.
Several code sprints with external companies, such as Toyota. Worked on surface reconstruction and scene understanding via superquadric fitting.
- 08/2012 -
04/2013 **Willow Garage, Inc., Menlo Park, USA**
Intern under the supervision of Dr. Radu Rusu. Working on 3D object modeling and indoor reconstruction with RGB-D cameras using only depth information and planar features, as part of my master thesis project.
- 09/2011 -
07/2012 **Computer Graphics and Geometry Laboratory, École Polytechnique Fédérale de Lausanne, Switzerland**
Student research assistant in the group of Prof. Dr. Mark Pauly, in collaboration with Faceshift. Working on improving 3D face and expression tracking using affordable 3D cameras such as the Microsoft Kinect or the Asus Xtion Pro.
- 06/2011 -
09/2011 **Google Summer of Code Program 2011, Point Cloud Library**
Participated in writing and improving algorithms in the Point Cloud Library, under the supervision of Dr. Radu Rusu. Concentrated more on 3D feature extraction, but topics also included: point cloud smoothing, interest region / keypoint detection, registration, (hand gesture) classification.
- 06/2010 -
08/2010 **Computer Graphics and Geometry Laboratory, École Polytechnique Fédérale de Lausanne, Switzerland**
Research intern in the group of Prof. Dr. Mark Pauly. Worked on an application for facial tracking (3D rigid body transform and expressions) from low-quality monocular video input. Involved experimentation with various computer vision and computer graphics techniques and concepts.
- 06/2009 -
06/2011 **Jacobs Robotics Research Group, Jacobs University, Bremen, Germany**
Student research assistant for the Co3 AUVs EU project (Cooperative Cognitive Control for Autonomous Underwater Vehicles) and the RobLog EU project, supervised by Prof. Dr. Andreas Birk.
Created a framework for processing point/plane clouds integrating algorithms for cloud matching, plane extraction etc. Developed the machine vision module for the SICK Robot Day 2009 contest and integrated it in the Jacobs rescue robot. Programmed the GUI for interacting with the real and virtual robots and other components for the RoboCup 2009 competition.
Designed and implemented a 3D underwater robotics simulator for distributed computing. The application is used for teaching and research by all the partners of the Co3 AUVs project.
- 06/2009 -
08/2009 **Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI) Bremen – Robotics Innovation Center**
Summer internship. Developed Linux drivers and interfaces for various hardware (GPS board, SwissRanger SR3000, firewire cameras). Created an application that would interact with the SR3000 for gathering and processing point clouds and researched and evaluated various SLAM algorithms.
- 01/2009 -
11/2009 **Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI) Bremen - Cognitive Systems**
Worked on the DSim project in collaboration with Dr. Mehul Bhatt.
Built a 3D simulator for an indoor world where avatars interact with the environment through various types of sensors.

Teaching Experience

05/2013 - **École Polytechnique Fédérale de Lausanne, Switzerland**

to date

Teaching Assistant for the following courses:

- . Digital Geometry Processing – Spring 2014, Spring 2015, Fall 2016
- . Advanced Computer Graphics – Fall 2014, Fall 2015
- . Introduction to Computer Graphics – Spring 2016, Spring 2017

Supervised multiple master-level semester projects on topics such as: biomechanical simulations, physical face animation with a color projector, laser line scanner, multiview-stereo facial reconstruction, 3D reconstruction using handheld devices, hair physics simulation.

Presentations and Talks

05/2013 -
to date

Various presentations and demos organized at EPFL for university-wide events.
Press coverage for our SIGGRAPH 2015 project on avatar creation.

06/2016

PCL Hackfest Summer 2016

07/2013

Half Day Course on the Point Cloud Library

Smart Libraries for Computer Graphics Summer School (CGLibs) 2013, Pisa, Italy

05/2013

Invited talk, GPU Technology Conference, 2013, San Jose, California, USA

11/2011

PCL Tutorial at International Conference on Computer Vision (ICCV) 2011, Barcelona, Spain

Skills and Achievements

Languages:

Romanian: mother tongue

English: fluent

French: intermediate

German: basic knowledge

PC

Extensive knowledge of Linux operating systems, Microsoft Windows

Knowledge:

Frequent user of: MathWorks MATLAB, Wolfram Research Mathematica, Microsoft Visual Studio, Microsoft SQL Server, Blender, Autodesk Maya, Adobe Photoshop, Premiere, Microsoft Office, LaTeX, ArchiCAD

Technical

Proficient in C/ C++/ C#, Java.

Skills:

Frameworks: Qt, OpenCV, PCL, Boost, OpenGL, Bullet and Ogre3D

Professional tools: Autodesk Maya, The Foundry Modo, Adobe Premiere, Adobe Photoshop, MS Office

Experience in working with: Python, SQL, HTML, XML, ASP.NET, AJAX, Standard ML, Basic, Ruby, SML

Awards:

. Special Mention for the Student of the Year Excellence Award from LSRS (The League of Romanian Students Abroad), 2012

. 2nd prize at the ICRA 2011 Solutions in Perception Challenge with the Jacobs University Robotics Group

. Jacobs University President's List Award for outstanding academic achievements in all the academic years: 2008-2009, 2009-2010 and 2010-2011

. Various prizes in the National Olympiad of Computer Science, as well as other national and regional physics and mathematics contests – 2004-2008

Interests:

Photography, biking, reading, audio geek, entrepreneurship

References

Prof. Mark Pauly

mark.pauly@epfl.ch

Dr. Jovan Popović

jovan@adobe.com

Dr. Sofien Bouaziz

sofien.bouaziz@gmail.com

Prof. Dr. Ladislav Kavan

ladislav.kavan@gmail.com