Georgios KOPANAS

PERSONAL DATA

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WORK EXPERIENCE

INRIA
GraphDeco Group
Sophia-Antipolis, France

PhD Student (expected November 2023) My research focuses on the field of **Novel View Synthesis**. More specifically from a set of unstructured photographs taken from a consumer camera, we are extracting a 3-D representation of the scene using differentiable **point-based rasterization** techniques to improve on the limitations of traditional and neural representations.

ADOBE
San Franscisco, United States

Research Scientist Intern Summer of 2023. During this internship we explore the scalability of generative models for point clouds. More specifically we want to scale diffusion models that have inherent limitations regarding the number of points that they can handle and push the limits by changing the dimensionality of the model architecture through differentiable rasterization.

ARM
Media Processing Group
Cambridge, United Kingdom

Software Engineer September 2016 - December 2019. I worked as part of the Mali GPU SWE team. More precisely I was part of the team that is responsible for creating a non-intrusive way to capture any activity of the GPU drivers that are relevant to the user. This information is used for optimizing applications and monitoring the activity of the GPU.

INRIA
GraphDeco Group
Sophia-Antipolis, France

Intern/Research Engineer September 2015 - September 2016. I worked on optimizing the performance of a texture synthesis method by using Cuda techniques. I also developed a software system that renders highly realistic views of a synthetic scene, a link to subsequent structure from motion and multi-view stereo reconstructions based on the images rendered. The goal was to generate ground truth data for deep learning applications in the domain of image-based rendering.

SRI International
Visual Technologies Group
Princeton, NJ, United States

Student Associate June 2015 - Sept 2015. We developed an algorithm that was using Deep Learning techniques for detecting dominant moving objects in a video scene. The main novelty was exploiting temporal and spatial information for automatic generation of the training data and for detecting candidates which then where provided to the cNN for classification.

PUBLICATIONS

2023   **"3D Gaussian Splatting for Real-Time Radiance Field Rendering"**
🏆 Best Paper Award
G.Kopanas, B.Kerbl, T.Leimkhuler, G.Drettakis, SIGGRAPH 2023 (Journal Track)

2023   **"NeRFshop: Interactive Editing of Neural Radiance Fields"**
C.Jambon, B.Kerbl, G.Kopanas, S.Diolatzis, T.Leimkhuler, G.Drettakis, I3D 2023

2022   **"Neural point catacaustics for novel-view synthesis of reflections"**
G.Kopanas, T.Leimkhuler, G.Rainer, C.Jambon, G.Drettakis, SIGGRAPH Asia 2022 (Journal Track)

2021   **"Point-Based Neural Rendering with Per-View Optimization"**
G.Kopanas, J.Phillip, T.Leimkhuler, G.Drettakis, EGSR 2021 (Journal Track)

2016   **"Unsupervised Underwater Fish Detection Fusing Flow and Objectiveness"**
D.Zhang, G.Kopanas, C.Desai, M.Piacentino, S.Chai., WACVW 2016

EDUCATION

2016   Diploma (5-year B.S./M.S. degree) in COMPUTER AND COMMUNICATION ENGINEERING, **University of Thessaly**, Volos, Greece

Side Projects

April 2014 -
June 2014

Implementation of Parallel Human Detection algorithm (HOG) with verilog in FPGA

Fields: Computer Vision and Machine Learning

pHOG is a parallel implementation of the widely popular image features called histogram of oriented gradients. It is a common step in many algorithms including object detection. During the project we implemented the former algorithm on fpga devices.

Feb 2019 -
July 2019

Adobe Lightroom Plugin: Deep Learning plugin for image developing.

Fields: Deep Learning and Image Processing

Post-processing image editors that work on massive catalogues for editing pictures with Adobe Lightroom spend the majority of their time adjusting the White-Balance controls but in the same time every editor has a specific style that matches all of his pictures to a very distinct white balance. This plugin is using a convolutional neural network to adjust the values of the White-Balance based on the style of the specific editor since we are using his previous work to train the model. Future expansion is to train the model ad-hoc every time the editor exports the pictures and to adjust more values except White Balance.

June 2014 -
March 2015

Implementation of Edge-based Method for Sharp Region Extraction From Low Depth of Field Images

Fields: Image Processing and Machine Learning

This algorithm proposes a method for extracting blur/sharp regions of interest (ROI) that benefits from using a combination of edge and region based approaches. It can be considered as a preliminary step for many vision applications tending to focus only on the most salient areas in low depth-of-field images. During this project emphasis was given on real-time implementation.

Languages

Greek:	Excellent
English:	Excellent
German:	Novice

Technical Skills

Programming Languages:	C, C++. Python, Java, MIPS Assembly
Parallel Programming Languages & Libraries:	OpenCv, OpenGL, CUDA, OpenCL, OpenMP, MPI
Hardware Description Languages:	Verilog
Mathematic Languages:	MatLab
Scripting & Markup Languages:	LaTeX, HTML, MaxScript
Operating System:	Linux, Windows
Other:	Flex, Bison, Microsoft Visual Studio, Eclipse, Vtune, Nvidia Visual Profile Git

Interests and Activities

Technology, Open-Source, Programming, Computer Architecture, Mountaineering, Photography