TOBIAS SCHECK

Computer Vision & Machine Learning

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in @tobiasscheck

🌐 www.scheck.engineer

Git https://github.com/scheckmedia/

▤ Publications

WORK EXPERIENCE

SENIOR MACHINE LEARNING ENGINEER

Peregrine Technologies GmbH, Berlin | 05.2021 - present

The research, implementation and optimization of image-based deep learning methods in an automotive context with Python & C++ are among my main tasks. The focus is on the development of robust object recognition algorithms for low-power systems. These neural networks are used on cloud and edge systems like AWS and mobile phones.

In addition to my work, I wrote my doctoral thesis and successfully defended it (magna cum laude) at the PhD committee of Chemnitz University of Technology in June 2024.

RESEARCH ASSOCIATE

Chemnitz University of Technology | 09.2018 - 07.2021

In the research project AUXILIA, which deals with Active Assisted Living, neural networks are used to process omnidirectional image data. I have **successfully developed a 3D simulation using a game engine** to map necessary training data/scenarios without using sensitive data or endangering test persons (fall detection). Furthermore, I **successfully developed the sleep detection,** which determines the sleep quality and quantity based on the images. I was able to **publish my research results at various conferences** and in this way contribute to science, but also to my PhD thesis. In addition, I **taught, supervised and advised students** of the department.

FREELANCER

scheck-media | 02.2012 - present

Besides my passion for photography I've most recently **developed an application**, named PHOTILS, that passes an image through a neural network, classifies it, and extracts the suggested tags that can be used on social media. Everything happens offline without you having to send your data over the internet. As a user of the Darktable software, I wanted to take advantage of the PHOTILS app for tagging my photos in that software as well, so I **developed a plugin** that allows users of Darktable to save/sort/view photos based on the tags. More of my projects can be viewed in my Git repository.

MASTER STUDENT

Robert Bosch GmbH, Hildesheim | 10.2017 - 03.2018

During my master thesis I've **explored various methods to optimize neural networks** for semantic segmentation tasks with respect to theirs floating point operations and memory usage. Additional I **implemented a genetic programming approach**, in detail cartesian genetic programming, to find and evaluate neural network architectures in an automatic manner.

RESEARCH ASSISTANT

Fraunhofer Heinrich Hertz Institut, Berlin | 08.2015 - 08.2017

For the project *Tile Based HEVC Video for Virtual Reality* I implemented algorithms for encoding and transmitting high-quality videos for 360° Video for VR. As well I implemented adaptive http streaming methods on mobile devices. I presented the results and the project at CES in Las Vegas and IBC in Amsterdam.

DEVELOPER (INTERNSHIP)

TRC Family Entertainment, Malta | 04.2014 - 08.2014

Developing and programming Front- and Backends

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WORK EXPERIENCE

DEVELOPER

Hyperworx mediaproductions, Cottbus | 02.2011 - 09.2012

Planning, developing and programming websites, mobile applications and databases, customer discussions and first-level support

IT SPECIALIST

Brandenburg University of Technology, Cottbus | 09.2004 - 01.2011

Administration of Windows Servers, developing web- and Windows applications, firstlevel support

ACADEMIC BACKGROUND

PHD

Chemnitz University of Technology | 09.2018 - 06.2024

Improving Deep Learning-based Object Detection Algorithms for Omnidirectional Images by Simulated Data.

M.SC. INTERNATIONAL MEDIA & COMPUTING

University of Applied Science, Berlin | 10.2015 - 03.2018

Examination of various methods for optimization and compression of neural networks

B.SC. INTERNATIONAL MEDIA & COMPUTING

University of Applied Science, Berlin | 10.2012 - 09.2015

Developement of a system for a Wifi-based control of a DSLR camera

SPECIALISED COMPUTER TECHNOLOGY SCIENTIST FOR APPLICATION DEVELOPMENT

Brandenburg University of Technology, Cottbus | 08.2001 - 08.2004

Apprenticeship

TECHNICAL SKILLS

C++
Python
Machine/Deep Learning
TensorFlow/Keras
PyTorch
Java
JavaScript
Objective-C
PHP
Swift
SQL
... and more