

Petar Nikolov

ML / Computer Vision developer

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PERSONAL SUMMARY

I am a software developer, an expert in machine learning algorithms with years of experience in NLP, image processing and computer vision. I had a chance to work for both small start-up companies and for very big ones as an intern, regular employee, team lead or as a freelancer. I have built exciting projects working either alone or in a team, using well established methods and software libraries or by creating new state of the art algorithms from scratch.

I was involved in all stages of the software development and could be a valuable asset to any company turning our ideas to a product.

AREAS OF EXPERTISE

- Machine learning
- Computer Vision
- Deep learning
- Image processing
- Algorithms
- Research
- Keras / Tensorflow
- OpenCV / EmguCV
- Kinect
- Python / C# / C / C++

CAREER HISTORY



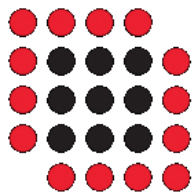
TEAM LEAD - Machine learning

Resolve Systems (<https://resolve.io/>)

Since 01.2018

Duties:

- Roadmap for future projects
- Architecture of ML infrastructure
- Leading a ML team to develop company needs
- Develop/implement NLP algorithms and services



SOFTWARE DEVELOPER – Computer vision

Myriad Development (<http://www.myriad-development.com>)

01.2017 – 01.2018

Duties:

- Develop algorithms for satellite image analysis
- C#, Python, OpenCV, ML, Deep Learning



SOFTWARE DEVELOPER

Euro Games Technologies (www.egt-bg.com)

02.2015 - 01.2017

Duties:

- Develop new .Net applications
- Maintain existing .Net applications
- .Net, WPF, C#, C++, SQL



IMAGE PROCESSING DEVELOPER

RetiDoc (www.retidoc.com)

06.2014 – 01.2015

Creating an ID card image analyzing software for banking systems.

Duties:

- Research available algorithms for OCR
- Algorithms for fake ID cards detection
- ID cards fields extraction and recognition



SOFTWARE DEVELOPER C/C++

BTC EAD (Vivacom)

11.2013 – 06.2014

Duties:

- Maintain and develop new functionalities to the billing system for the second biggest Mobile carrier in Bulgaria
- Create new tax plans



IMAGE PROCESSING INTERN RESEARCH

Valeo Vision, (Paris, France)

04.2013 – 09.2013

Duties:

- Research available algorithms for object detection.
- Improve algorithm for car detection in night conditions.
- Develop classification algorithms to determine if a lamp is part of a car or not. Calculate car distance and angle
- Work on a project used by Renault and Audi.



IMAGE QUALITY ENGINEER

MMS (Multimedia Solutions)

07.2011 – 09.2012

Duties:

- Learning image processing pipeline
- Learning Texas Instruments OMAP 4 architecture
- Research new algorithms for image pipeline.
- Improve image focus algorithm - used in mobile devices

FREELANCE PROJECTS



Company name: **Electrolux**, work period: **(07.2016 – 11.2016)**
Name of the project: **Reflection Removal**
Description: Remove reflection from images
Technology used: **C++, OpenCV, Image processing**



GlaxoSmithKline

Company name: **GSK - Bulgaria**, work period: **(08.2014 – 01.2015, 06.2015 – 12.2015)**
Name of the project: **Skin analysis**
Description: **Skin dirt and imperfections detection from microscopic images**
Technology used: **C++, OpenCV, Image processing**



Company name: **Kaplan**, work period: **(04.2016 – 06.2016)**
Name of the project: **KAPLAN MOVE-NG**
Description: Developing a unique learning tool that uses the human body as a game controller.
Technology used: **Kinect Version 2, C#.NET, WPF**

EDUCATION

COMPUTER VISION - since 02.2015

Name of institution: **Technical University of Sofia, Sofia, Bulgaria**
To be graduated level: **PhD**
Thesis Topic: Human motion analysis in 3D

WIRELESS TELECOMMUNICATIONS – since 09.2012

Name of institution: **Supelec, Orsay, France**
To be graduated level: **Master**
Main courses: **Digital communications, Network performance, Coding theory**

TELECOMMUNICATIONS - Study date (09.2011 – 10.2013)

Name of institution: **Technical University of Sofia, Sofia, Bulgaria**
Graduated level: **Master**

TELECOMMUNICATIONS - Study date (09.2011 – 10.2013)

Main courses: **Digital communications, Computer vision, Image and audio processing**

COMPUTER SCIENCE - Study date (09.2011 – 06.2014)

Name of institution: **Technical University of Sofia, Sofia, Bulgaria**
Graduated level: **Master**
Main courses: **Programming for WEB, Computer vision, OOP**

OTHER PROJECTS

Name of the project: **Face detection and recognition**

Description: Scale invariant system for face detection and improved SVM algorithm for classification.

Technology used: **C / C++, SVM classifier, PCA.**

Designed for: Bachelor thesis, Technical University of Sofia

Name of the project: **Virtual Guitar**

Description: Recognize hands position and classify finger patterns as guitar chords

Technology used: **Microsoft Kinect, C / C++, image processing, Computer vision, OpenCV**

Designed for: Master thesis, Technical University of Sofia

Name of the project: **Object detection with colour segmentation**

Description: Detect a moving object placed in front of a robot. Move the robot so that it will avoid the object

Technology used: **C, Matlab**

Designed for: Erasmus internship, Technical University of Pavia, Italy

Name of the project: **Optical character recognition (OCR)**

Description: Recognize all kind of symbol characters – scale and rotation invariant.

Technology used: **C#, EmguCV**

Designed for: Freelance

Name of the project: **Image processing library**

Description: My personal image processing/ computer vision library similar to OpenCV. All algorithms are written from scratch after detailed research.

Technology used: C++ / C#

Some of the developed algorithms:

- Matrix and vector operations.
- Affine, Fourier, cosine transforms
- Colour spaces conversion (RGB, Lab, HSL, XYZ, UV...)
- Image effects – Emboss, cartoon, multiple edge extraction and sharpening / blurring techniques.
- Threshold operations, binary analysis.
- Skin / colour segmentation, region and object detection.
- Object tracking using Kalman filter, Mean/Cam shift
- Reading and compressing images in multiple formats.

Name of the project: **Image processing GUI**

Description: Environment for testing image processing algorithms, similar to GIMP and Photoshop

Technology used: **C#, EmguCV, Image processing library**

Designed for: Master thesis, Technical University of Sofia

Name of the project: **People tracking for tennis actions recognition**

Description: Calibrate multiple cameras around a tennis field and track all players and the ball. Recognize players actions and ball position.

Technology used: **C++, OpenCV, Image processing library**

Designed for: Freelance