Babak Maser, M.Sc

Computer Vision & Machine Learning Engineer

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Affiliation

Student of Joint M.Sc. program in Applied Image and Signal Processing (AISP), Department of Computer Science, University of Salzburg and Salzburg University of Applied Sciences (Fachhochschule Salzburg).

Experience as a Computer Vision researcher

2019|present **Wavelab(The Multimedia Signal Processing and Security Lab)**,
Research student,
I am researching as part of my master thesis under the supervision of Univ.-Prof. Dr. Andreas Uhl the head of Wavelab. The research projects are as follow: .

- Texture classification using deep learning
- Finger vein classification based on texture descriptors.
- Sensor Identification using various algorithms and techniques
- PRNU-based finger vein sensor identification
- Survey on effect of various compression techniques on texture classification.

Deep learning Project

1. Classification of Image digits with SVHN dataset. [github demo]

   of satellite images using EuroSAT dataset (including residential, industrial, highway, river, forest, pasture, herbaceous vegetation, annual crop, permanent crop and sea/lake images)

   Classification using Transfer learning with Dogs vs Cats dataset (2013 Kaggle competition).

   Classification on LSUN dataset and CIFAR-100 dataset (with a focus on Tensorflow and Keras data processing tools)

   of fashion article images using a custom model with custom layers (Residual Network). [github demo]

2. Implementing the neural style transfer (NST) algorithm and Generating novel artistic images.

Publication

Following publications are results of research projects which have been done by me and my colleagues under supervision of Univ.-Prof. Dr. Andreas Uhl, the head of Wavelab, "The Multimedia Signal Processing and Security Lab".

2019

ICB 2019 [1] **PRNU-based finger vein sensor identification On the effect of different sensor croppings**, *In Proceedings of the 12th IAPR/IEEE International Conference on Biometrics (ICB'19) (pp. 1-8)*, as a second author.

IWBF 2019 [2] **PRNU-based Detection of Finger Vein Presentation Attacks**, *2019 7th International Workshop on Biometrics and Forensics (IWBF). 2019*, as a first author.

ICBEA 2019 [3] **Finger Vein Image Compression With Uniform Background**, In Proceedings of the 2019 3rd International Conference on Biometric Engineering and Applications, pp. 23-27. 2019, as a first author.

ARW/OAGM 2019 [4] **PRNU-based Finger Vein Sensor Identification in the Presence of Presentation Attack Data.**, *Proceedings of the Joint ARW/OAGM Workshop 2019 (ARW/OAGM'19). 2019*, as a first author.

2018

BIOSIG 2018 [5] **Finger-vein sample compression in presence of precompressed gallery data.**, *2018 International Conference of the Biometrics Special Interest Group (BIOSIG)*, IEEE, 2018. Darmstadt, Germany, as a second author.

Licenses & Certifications

- Coursera

1. **Convolutional Neural Networks**,
   Credential ID: QCNF57NK42RB , link to Credential
2. **Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization**,
   Credential ID: ZNQ2Q6EFS45R , link to Credential
3. **Structuring Machine Learning Projects**,
   Credential ID: A66WASZZ7TVN , link to Credential
4. **Neural Networks and Deep Learning**,
   Credential ID: YRT3H5H23E6A , link to Credential

Academic Project

1. Measurement of pennation angle (PA) of pinnate muscle, winter semester of 2016, (The project is part of Medical Imaging course)
2. People counting using UCSD Pedestrian dataset with deep learning approach, 2017. (The project is part of Computer Vision proseminar course).
3. Detection of Morphed Face Images using Deep learning. This project was done by Pytorch framework with AlexNet model, 2017/18.
4. A Survey on effect of pre-processing and feature extraction on Finger-vein recognition using SIFT, SURF, BRIEF and ORB. 2017/18 (The project is part of Biometric Systems proseminar course).
5. Semantic word vectors using word2vec, 2018. (The project is part of Pattern Recognition course).

Past Working Experience in IT Industry

03-2014|10-2015 **Knauf Company**,
System Analyst and IT expert.

2008,2011-2013 **University of applied science and technology, Department of Computer Engineering** ,
Adjunct lecturer.

06-2008|02-2009 **Jooya Informatics Group**,
System Analyst and product owner,
Providing a total solution for digitizing TV stations.

Education

2015-Present Joint M.Sc. Applied Image & Signal Processing, Department of computer Science, University of Salzburg and Salzburg University of applied Sciences, Austria.

2005-2008 M.Sc. in Computer Science, Department of Computer Science, Fergusson College, University of Pune, India.

Technical Skill

- **Current skill:**
  1. Programming Language and Libraries: Python, OpenCV-python, Scikit-image, scikit-learn, Numpy, Scipy,
  2. Deep Learning framework: Keras/tensorflow 2.X
  3. Tools: Pycharm, Github, Gnu-plot, matlibplot, Latex.
- **Past skill:** I worked and learnt many programming languages and tools in the past, these are as follow: Core Java, Visual Basic, C++ (linux), C, HTML, CSS, Haskel (Gofer dialect), Lisp, Prolog, MS-SQL, Linq and, Design and analysis Tools: UML, Enterprise Software Architecture.

References

Available on request.