Vedran Vukotić

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CURRICULUM VITAE

EDUCATION

INRIA/IRISA Rennes and INSA Rennes Rennes, France
PhD in Computer Science Sept. 2017
Thesis: Deep Neural Architectures for Automatic Representation Learning From Multimedia Multimodal Data

Faculty of Electrical Engineering and Computing Zagreb, Croatia
Master of Science in Computer Science, GPA: 4.347/5 Jul. 2014
Thesis: Deep Neural Networks for Image Classification

Faculty of Electrical Engineering and Computing Zagreb, Croatia
Bachelor of Computer Science, GPA: 3.788/5 Jul. 2012
Thesis: A Computer Vision Framework for Mobile Platforms

Faculty of Maritime Studies Rijeka, Croatia
Master of Science in Nautical Studies and Maritime Transport Technology, GPA: 5/5 Oct. 2010
Thesis: Analysis of Static and Dynamic Transverse Ship Stability

PUBLICATIONS

V. Vukotić, C. Raymond, G. Gravier. *"A Crossmodal Approach to Multimodal Fusion in Video Hyperlinking"*. IEEE MultiMedia Special Issue: Vision and Language Integration Meets Multimedia Fusion. Apr. 2018

V. Vukotić, S-L Pintea, C. Raymond, G. Gravier, J. C. van Gemert. *"One-Step Time-Dependent Future Video Frame Prediction with a Convolutional Encoder-Decoder Neural Network"*, ICIAP 2017, Catania, Italy, Sept. 2017

M. Dinarelli, V. Vukotić, C. Raymond. *"Label-dependency coding in Simple Recurrent Networks for Spoken Spoken Language Understanding"*. Interspeech. 2017, Stockholm, Sweden, Aug. 2017

V. Vukotić, C. Raymond, G. Gravier, *"Generative Adversarial Networks for Multimodal Representation Learning in Video Hyperlinking",* ICMR 2017, Bucharest, Romania, Jun. 2017

R. Bois, V. Vukotić, A-R. Șimon, R. Sicre, C. Raymond, P. Sébillot, G. Gravier, *"Exploiting Multimodality in Video Hyperlinking to Improve Target Diversity"*, International Conference on Multimedia Modeling 2017, Reykjavík, Iceland, Jan. 2017

V. Vukotić, S-L. Pintea, C. Raymond, G. Gravier, J. Van Gemert, *"One-Step Time-Dependent Future Video Frame Prediction with a Convolutional Encoder-Decoder Neural Network"*, Netherlands Conference on Computer Vision (NCCV) 2016, Lunteren, The Netherlands, Dec. 2016

V. Vukotić, C. Raymond, G. Gravier, *"Multimodal and Crossmodal Representation Learning from Texual and Visual Features with Bidirectional Deep Neural Networks for Video Hyperlinking",,* ACM workshop on Vision and Language Integration Meets Multimedia Fusion 2016, Amsterdam, The Netheerlands, Oct. 2016

V. Vukotić, C. Raymond, G. Gravier, *"A step beyond local observations with a dialog aware bidirectional GRU network for Spoken Language Understanding",* Interspeech 2016, San Francisco, USA, Sept. 2016

V. Vukotić C. Raymond, G. Gravier, *"Bidirectional Joint Representation Learning with Symmetrical Deep Neural Networks for Multimodal and Crossmodal Applications",* ICMR 2016, New York, USA, June 2016

V. Vukotić, C. Raymond, G. Gravier, *"Is it time to switch to Word Embedding and Recurrent Neural Networks for Spoken Language Understanding?"*, Interspeech 2015, Dresden, Germany, Sept. 2015

V. Vukotić, J. Krapac, S. Šegvić, "*Convolutional Neural Networks for Croatian Traffic Signs Recognition"*, CCVW 2014, Zagreb, Croatia, Sept. 2014

V. Braut, M. Čuljak, V. Vukotić, S. Šegvić, "*Estimating OD Matrices at Intersections in Airborne Video - a Pilot Study"*, MIPRO, Opatija, Croatia, May 2012

EMPLOYMENT

INRIA/IRISA Rennes and INSA Rennes Rennes, France
PhD Student Oct. 2014 – Sept. 2017

- deep neural architectures for automatic representation learning from multimedia multimodal data

TU Delft Delft, The Netherlands
Visiting PhD Student Sept. 2016 – Dec. 2016

- predicting motion from static images

INRIA/IRISA Rennes, France
Research Intern May. 2014 – Nov. 2014

- evaluation of local and hierarchical methods for feature democratization

Končar INEM Zagreb, Croatia
Software Development Intern Jan. 2014 – May. 2014

- working on a mesh sensor network for monitoring and aggregating household utilities

Lappeenranta University of Technology Lappeenranta, Finland
Software Development Intern Summer 2013

- developing a serious game for mobile devices that aims at improving wellness at the workplace by teaching healthy habits

Septentrio Satellite Navigation Leuven, Belgium
Software Development Intern Summer 2012

- building system optimization
- static analysis deployment research

La Quinta Inn & Suites Tampa, FL, USA
Laundry/Room Attendant Summer 2009

- CCUSA applicant
- laundry, room cleaning and attending

Faculty of Maritime Studies Rijeka, Croatia
Undergraduate Assistant – Computing and Electronic Communications 2006 - 2007

- helping students attending the course
- assisting during lectures and exams

Faculty of Maritime Studies Rijeka, Croatia
Undergraduate Assistant – Mathematics 2005

- helping students attending the course
- holding *Wolfram Mathematica* laboratory exercises

Lošinjska Plovidba Rijeka, Croatia
Deck Cadet/Working 3rd Officer 2003 - 2004

- navigation and cargo operations on board a Ro-Ro container vessel connecting European ports

RELEVANT UNIVERSITY WORK

Deep Neural Networks for Image Classification (Master Thesis)

- implementation of a convolutional neural network from scratch and application on a Croatian traffic signs dataset

Human race detection on facial images (Project for a pattern recognition class)

- a quick k-NN based classifier that uses RGB medians and the *n* most variant LBP values (determined by ANOVA) to classify human faces according to races

Machine learned classifiers for multi-class object detection (Seminar)

- an overview of the single-class Viola-Jones cascade followed by ways of implementing faster multi-class object detection by sharing intra-class features
- using Cluster Boosted Trees (CBT) and Gentleboost algorithms for multi-class detection

Developing of an educational 8-bit CPU made of discrete components and low cost CPLDs (Project for Computer Architecture 2)

- making a steppable 8-bit CPU with custom architecture and LED indicators on all the important parts (address bus, data bus, ALU, etc) by using the 74xx series and two low cost CPLDs

A Computer Vision Framework for Mobile Platforms (Bachelor Thesis)

- a framework that aims at speeding up the process of developing computer vision applications for the Android platform
- faster developing is achieved by allowing the same code to be compiled both for the targeted Android platform and for desktop computers where computer vision methods are tested and developed against a previously recorded video

Estimating OD Matrices at Intersections in Airborne Video (Software Design Project)

- using computer vision methods to detect vehicles in aerial videos and computing origin-destination matrices (turning statistics) at intersections

Approaches to determine self position by processing images of a night sky (Seminar)

- an introduction to methods of astronomical navigation and computer vision that would enable an autonomous vehicle to approximate its position by analyzing images of the night sky

HONORS & AWARDS

"Stanko Turk" award for the best diploma thesis in the field of the computer science 2014

Received Mali Lošinj city scholarship 2010

Received Croatian state scholarship for talented students 2005

Skills & Interest

Languages: Fluent English, Italian and Croatian, basic French

Interests: deep learning, multimedia, NLP, computer vision, machine learning, DIY