Vasileios Lioutas

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RESEARCH INTERESTS

I am broadly interested in questions related to computer vision and reinforcement learning. My principal research interest lies in the area of image restoration, 3D scene reconstruction and key points localisation. I am also interested in Robotic Vision where an agent given a visual observation will be able to successfully comprehend the environment.

EDUCATION

Carleton University, Ottawa, Canada
Master's of Computer Science, Computer Science (Data Science)
2018 - 2020 GPA: 12.00/12.00
Supervisor: Dr. Yuhong Guo
Master's Thesis: *Sequence Modeling with Linear Complexity*

Aristotle University of Thessaloniki, Thessaloniki, Greece
Bachelor's of Science (Hons), Computer Science
2012 - 2016 GPA: 8.01/10.00
Supervisor: Dr. Ioannis Vlahavas
Honours Thesis: *Customer Segmentation Using Methods of Multiple Correspondence Analysis*

INDUSTRY EXPERIENCE

Huawei Technologies, Montreal, Canada **May 2019 - Present**
Machine Learning Research Intern
Performed research in Multilingual Neural Machine Translation. I implemented many Embedding Compression methods from the literature and I successfully delivered compressed neural models according to production requirements. I came up with a novel Embedding Compression method that outperforms the previous methods and I submitted a paper with this work to a top tier conference.

Mediaforce.ca, Ottawa, Canada **Feb 2018 - Aug 2018**
Machine Learning Engineer
I was in charge of forming the Machine Learning department of the company. I developed two different Recommendation Systems (a k-NN based system and a Deep Learning system) that can work in real-time. I was responsible of designing and implementing the whole stack of the system including collecting the data (from multiple sources), storing the data in fast databases, preprocessing the data in real-time, updating the ML algorithms (in real-time) and creating the interfaces to use them (APIs).

Plushost.gr, Trikala, Greece **Aug 2014 - Aug 2015**
Intern Android Application Developer
I developed an Android Application framework compatible with CS-Cart 4.x. In addition, I developed a plug & play RESTful server API for CS-Cart platform supporting both anonymous and registered users.

RESEARCH PUBLICATIONS

[1] *Lioutas, V.* and Guo, Y. (2020). Time-aware Large Kernel Convolutions. In *Proceedings of the 37th International Conference on Machine Learning (ICML)*.

[2] *Lioutas, V.*, Rashid, A., Kumar, K., Haidar, M. A., and Rezagholizadeh, M. (2020). Distilled embedding: non-linear embedding factorization using knowledge distillation. In *under review*.

[3] *Lioutas, V.*, Passalis, N., and Tefas, A. (2018). Visual Question Answering using Explicit Visual Attention. In *2018 IEEE International Symposium on Circuits and Systems (ISCAS)*.

[4] *Lioutas, V.*, Passalis, N., and Tefas, A. (2018). Explicit ensemble attention learning for improving visual question answering. *Pattern Recognition Letters*.

RESEARCH EXPERIENCE

Machine Learning Lab, Carleton University **2018 - 2020**
Research Assistant
Research Project: *Time-aware Large Kernel Convolutions*
In this project, I am studying an alternative way of modeling sequences using a fast and efficient novel convolution operation I invented. The goal is to improve the performance of applications such as Neural Machine Translation and Language Modelling compared to the current state-of-the-art methods in the literature.

AIIA Laboratory, Aristotle University **2016 - 2018**
Research Assistant
Research Project: *Visual Question Answering using Explicit Visual Attention*
In this project, I developed a way of training visual attention models that in contrast to the other approaches in the literature, these attention models were trained to explicitly learn where to attend in the image based on the given question. This helped to pass better, less noisy information to the main VQA model that is responsible to predict the correct answer.

TEACHING EXPERIENCE

Department of Computer Science, Carleton University
Teaching Assistant

Computing for Arts Students - COMP1001A	Sep 2019 - Dec 2019
Artificial Intelligence - COMP4106	Jan 2019 - Apr 2019
Neural Networks - COMP4107	Sep 2018 - Dec 2018

VOLUNTEER EXPERIENCE

International Conference on Learning Representations (ICLR) **2020**
Volunteer

Neural Information Processing Systems (NeurIPS) Conference **2020**
Student Volunteer

Data for Good **2018**
Data Scientist, Volunteer

HONOURS AND AWARDS	**Greek Open Source Community (ELLAK)** *Honor Prize*	**2015** *$1000*

RELEVANT GRADUATE COURSE-WORK

- **Machine Learning**, COMP5900Q
- **Advanced Machine Learning**, COMP5900X
- **Introduction to Deep Learning and Reinforcement Learning**, COMP5900R
- **Natural Language Processing**, COMP5505

TECHNICAL SKILLS

Programming: Python, R, Java, Scala
Machine Learning Tools: TensorFlow, PyTorch, SciKit-Learn, H2O, MLlib, Apache Mahout
Databases: MySQL, MongoDB, BigQuery, Cassandra, HBase, Redis
Tools/Framework: Apache Spark, Apache Beam, Kafka, Apache Storm, GCP, Shiny, git, Pandas
DevOps Tools: Docker

LANGUAGES Bilingual in English and Greek