Iulia Duta

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EDUCATION

University of Cambridge, UK   *Oct. 2021 –*
PhD in the Department of Computer Science and Technology
Supervisors: Prof. Pietro Liò and Dr. Ferenc Huszár

University of Bucharest, Romania   *Oct. 2016 – June 2018*
M.Sc. in Artificial Intelligence
GPA 10/10, Rank: 1st (*Valedictorian distinction*)

University of Bucharest, Romania   *Oct. 2013 – June 2016*
B.Sc. in Mathematics and Computer Science
GPA 9.97/10, Rank: 1st (*Valedictorian distinction*)

RESEARCH PUBLICATIONS

Discovering Dynamic Salient Regions for Spatio-Temporal Graph Neural Networks. Iulia Duta*, Andrei Liviu Nicolicioiu* and Marius Leordeanu (*NeurIPS 2021*)

Recurrent Space-time Graph Neural Networks. Andrei Liviu Nicolicioiu*, **Iulia Duta*** and Marius Leordeanu. *Advances in Neural Information Processing Systems (NeurIPS 2019)*

Mining for meaning: from vision to language through multiple networks consensus. Iulia Duta*, Andrei Liviu Nicolicioiu*, Simion-Vlad Bogolin and Marius Leordeanu. *The British Machine Vision Conference (BMVC 2018)*

RESEARCH PROJECTS

Effective Receptive Field for Graph Neural Networks
Worked with Andrei Nicolicioiu

Analyzed theoretically and empirically the effective receptive field of different graph neural networks such as Graph Convolutional Network and Self-Attention model.

Graph-based Video Understanding
Worked with Andrei Nicolicioiu and Marius Leordeanu

Introduced a recurrent graph neural network that processes a video by message-passing between nodes both spatially and temporally, used for action recognition task. Designed a method to dynamically extract salient regions in the video that could represent graph nodes, without external supervision at the object level.

Video Captioning
Worked with Andrei Nicolicioiu and Marius Leordeanu (Master Thesis - University of Bucharest)

Developed several architectures to encode the content of the video and introduce a novel method, based on consensus between models outputs, to extract the best caption for each video.

Multi-Label Classification
Worked with Andrei Nicolicioiu and Marius Leordeanu

Studied models for multi-label classification applied in video, based on the correlation between predicted labels and selected the strongest cluster according to the correlation matrix.

Computational Geometry & Computer Vision

Advised by Prof. Sorin Stupariu (Bachelor Thesis - University of Bucharest)

Created an application based on classical computer vision approaches to detect and reconstruct the 3D space represented in a topographic map using only JPEG images as input.

HONORS AND ACHIEVEMENTS

Romanian Olympiad in Mathematics	gold medal	*2010*
	silver medal	*2007-2008, 2011-2013*
	bronze medal	*2009*
ACM Southeastern European Region	Finalist	*2014*
ACM National Contest	Finalist	*2014-2015*
Extended team of Romania for International Mathematical Olympiad (IMO)		*2008*

EXPERIENCE

Machine Learning Researcher at Bitdefender   *Nov 2016 – Present*

I work on challenging research projects involving supervised methods for video analysis. We design methods to solve current issues from this field. Currently, we are interested in graph-based neural network models for video understanding.

Teaching Assistant at University of Bucharest   *Oct 2016 – Present*

Organize and coordinate laboratories and seminars for *Data Structure and Algorithms* course at the University of Bucharest, Department of Computer Science

Teaching Assistant at University of Cambridge   *Oct 2016 – Present*

Prepare and coordinate the practicals/assignments for *Representation Learning on Graphs and Networks (L45)* course at the University of Cambridge

Feb 2019 – Present

Natural Language Processing lecture for the *Deep Learning* optional course at the University of Bucharest, Department of Computer Science

TALKS AT SEMINAR

Bucharest Deep Learning Group: *Introduction in Graph Neural Networks*   *May 2021*

Computer Vision Seminar, IMAR Bucharest *Recent approaches in Graph Neural Networks*   *Feb 2019*

Bucharest Deep Learning Group: *Weakly supervised approaches for Dense Captioning*   *Oct 2017*

Conference on Recent Advances in Artificial Intelligence, University of Bucharest. (RAAI)   *June 2019*
Present our work on Recurrent Space-time Graph Neural Network

MISC

EEML 2019 & Virtual EEML 2020 (Eastern European Machine Learning Summer School)

Teaching Assistant for Labs Session at Eastern European Machine Learning Summer School, including Computer Vision, Generative Models and Reinforcement Learning

Reviewer activity

ICCV 2019, AAAI 2020, CVPR 2020, ECCV 2020, NeurIPS 2020, GRL 2020 (best reviewer), AAAI 2021, ICLR 2021, ICCV 2021, ICML 2021, NeurIPS 2021, ICML 2022

Project mentoring for Deep Learning Course

Supervising several undergraduate students for their final projects in Deep Learning Course

Tutor for Mathematics and Computer Science
Tutored students in mathematics courses and algorithmic concepts

PROFESSIONAL SKILLS

Strong mathematical and algorithmic background
Pytorch, Tensorflow, Python, C/C++, Linux, Matlab, OpenGL