Yusuf Yiğit Pilavcı

PERSONAL DETAILS

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EDUCATION

PhD Student
<div align="right">2019 Dec.- Present</div>

GIPSA-LAB, GAIA Team
Université Grenoble Alpes
Ongoing Thesis about Wilson's Algorithm for Randomized Linear Algebra

Research Intern
<div align="right">2019 Mar.- Sept.</div>

GIPSA-LAB
Université Grenoble Alpes
Master Thesis on Random Spanning Forests, Theory and Applications

Master of Science
<div align="right">2017-2019</div>

Politecnico di Milano
Computer Science and Engineering
Final Grade : 108.0 / 110

Bachelor's degree
<div align="right">2013-2017</div>

Middle East Technical University
Department of Electrical and Electronics Engineering
CGPA 3.79 / 4.00 (10th/348)

Minor Degree
<div align="right">2014-2017</div>

Middle East Technical University
Department of Computer Engineering

RESEARCH EXPERIENCE

Wilson's Algorithm for Randomized Linear Algebra
<div align="right">2019 Dec - Present</div>

PhD Student
Currently working as a PhD student at GIPSA-Lab under supervision of Nicolas Tremblay, Simon Barthelmé and Pierre-Olivier Amblard. The main goal of the thesis is to investigate the applications of the links between algebraic graph theory, random spanning forests (RSF) on the graphs and efficient randomized methods for linear algebra (randomized linear algebra). In previous research, we have already introduced several applications of random forests on graphs,such as estimators for the inverse trace or for graph signal smoothing. The main direction of this thesis is to exploit Wilson's algorithm (a fast way to sample RSFs) in a wider range of linear algebra problems, for example to build estimators for matrix inversion, singular value decomposition, eigendecomposition, etc.

Random Spanning Forests: Theory and Applications
<div align="right">2019 March - Sept</div>

Research Intern
Worked as a research intern at GIPSA-Lab, Grenoble/France, under supervision of Nicolas Tremblay, Simon Barthelmé and Pierre-Olivier Amblard. In this research, the links between random spanning

forests and determinantal point processes are investigated by leveraging the tools of linear algebra. In turn, we proposed a novel and efficient algorithm for smoothing graph signals and presented both theoretical and experimental analyses of the proposed method. Presented at ICASSP 2020.

Spectral Graph Wavelet Analysis on Brain Signals
`2018`
`July - Sept`

Research Intern

Worked as a summer intern at IMT Atlantique, Brest/France, under supervision of Assoc.Prof. Nicolas Farrugia. In this research, worked on spectral graph wavelet (SGW) analysis on brain graphs and signals, specifically using FMRI images. The main motivation is to investigate the possible improvements with SGW analysis for the purpose of extracting more meaningful representation of brain signals in terms of machine learning and decoding problems defined in neuro-science literature. Presented at ICASSP 2019

Signal Processing and Domain Adaptation on Graphs
`2017 - 2019`

Volunteer Researcher

Worked on graph signal processing. As an undergraduate researcher, conducted researches on wavelet transform and domain adaptation problems with Ass.Prof Elif Vural. In this project, worked intensively on both mathematical modelling and also implementation. Paper under submission.

3D Map Reconstruction for the Endoscopic Capsule Robot
`2016`
`June - Sept`

Undergraduate Researcher

Conducted research in collaboration with Max Planck Institute for Intelligent Systems. In this project, 3D Map Reconstruction is applied to videos recorded by robotic endoscopy capsules. Worked on implementation, algorithms and creating a workflow. Paper published in Machine Vision and Applications.

Control of a 5-DOF Robot Arm (Teachmover)
`2015`
`July - Aug`

Volunteer Summer Internship

Worked on design and implementation of a software that controls a robotic arm with 5-DOF.

Traffic Analysis from Quadrotor Camera
`2014 - 2015`

Undergraduate Researcher

Worked on computer vision algorithms for an automated traffic analysis system. Implemented algorithms for image registration, background - foreground subtraction, optical flow.

INDUSTRIAL EXPERIENCE

ASELSAN,Ankara,Turkey
`2017`
`Feb - May`

Candidate Engineer

Trained and worked as software engineer by using C++/C, Unix and Java

ASELSAN,Ankara,Turkey
`2016`
`June - July`

Internship

Studied and observed on Real Time Operating Systems on multi-core processors

Huawei, Ankara, Turkey
`2015`
`June - July`

Internship

Studied and observed on fiber optical transmission systems and signal modulations

SKILLS

Languages	English (fluent), Turkish (native)
Programming	C/C++, Python, Julia
Software	Matlab, LaTeX