SEMIH BARUTCU

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PROFILE

Ph.D. candidate at Northwestern University with a focus in algorithm development for inverse problems, deep learning, and computer vision. Seeking graduate internship opportunities in artificial intelligence, data science and image processing fields.

EDUCATION

Ph.D. Electrical Engineering and Computer Science
Northwestern University, Class of 2022, GPA=3.98/4.00
(Katsaggelos Image & Video Processing Lab)

B.Sc. Electrical Engineering, *summa cum laude*
Bogazici University Istanbul, Class of 2017, GPA=3.80/4.00
(Minor in Business Administration and Management)

M.Sc. Electrical Engineering and Computer Science
Northwestern University, Class of 2018, GPA=3.98/4.00

(Full Scholarship) Exchange in Electrical & Computer Eng.
University of Texas at Austin, Class of 2017, GPA=3.84/4.00

TECHNICAL SKILLS

- Python
- PyTorch
- Keras
- C/C++
- Scikit-learn
- Pandas
- MATLAB
- TensorFlow
- Java
- OOP
- Electronic Design
- Numpy/Scipy

EXPERIENCE

Image Processing Research Assistant   *Sept 2017 – Present*
Northwestern University – Katsaggelos' Image and Video Processing Laboratory   *Evanston, IL*

- Developing techniques for computational microscopic imaging methods, combining Fourier ptychography and computational tomography.
- Researching machine learning solutions to problems in image / video analysis and processing

Computational Science Intern   *June – August 2018*
Argonne National Laboratory – The Advanced Photon Source   *Lemont, IL*

- Developing and implementing an iterative algorithm on direct coupling of computational tomography and Fourier ptychography

Mobile Application Developer   *March – Sept 2017*
Valensas Mobile Technologies   *Istanbul, TR*

- Developing Android applications for multiple banks and companies

R&D Engineering Intern   *August – Sept 2016*
Mercedes – Benz Turk   *Istanbul, TR*

- Simulating and testing effects of electrical motor on vehicle performance

Software Engineering Intern   *June – July 2016*
Mercedes – Benz Turk   *Ankara, TR*

- Application virtualization for computer programs specific to the industry

Digital Design Engineering Intern   *June – July 2015*
Mercedes – Benz Turk   *Ankara, TR*

- Designing a PCB to be used as a Video DAC and driving it using HDL

PUBLICATIONS

- **S. Barutcu**, S. Prasan, P. Ruiz, O. Cossairt, A. Katsaggelos. (2020). "Automatic Differentiation for 3D Ptychographic Reconstruction". *International Conference on Image Processing (ICIP)*. In preparation.
- **S. Barutcu**, D. Gursoy, O. Cossairt, A. Katsaggelos. (2019). "Solving Ptychography and Tomography Problems in a Single Step". *Optics Letters*. In preparation.
- **S. Barutcu**, L. Arslan. "Topic Classification Using Bidirectional LSTM Neural Networks." *Bogazici University Undergraduate Thesis*. Print.