

SEMIH BARUTCU

sbarutcu.github.io

semihbarutcu@u.northwestern.edu

+1 (847) 910 0264

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
Evanston, IL

Northwestern University – Katsaggelos' Image and Video Processing Laboratory

- Developing techniques for computational microscopic imaging methods, combining ptychography and computational tomography.
- Building neural networks for detection of Covid-19 and Cardiac Amyloidosis from chest x-rays.
- Exploring machine learning solutions to problems in computer vision and biomedical imaging

Computational Science Intern

June – August 2018
Lemont, IL

Argonne National Laboratory – The Advanced Photon Source

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

Mobile Application Developer

March – Sept 2017
Istanbul, TR

Valensas Mobile Technologies

- Developing Android applications for multiple banks and companies

R&D Engineering Intern

August – Sept 2016
Istanbul, TR

Mercedes – Benz Turk

- Simulating and testing effects of electrical motor on vehicle performance

Software Engineering Intern

June – July 2016
Ankara, TR

Aselsan Defense Industry Inc

- Application virtualization for computer programs specific to the industry

Digital Design Engineering Intern

June – July 2015
Ankara, TR

Meteksan Defense Industry Inc

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

SELECTED PUBLICATIONS

- **S. Barutcu**, P. Ruiz, F. Schiffrers, S. Aslan, D. Gursoy, O. Cossairt, A. Katsaggelos. (2020). “Solving 3D Ptychographic Reconstruction Problem by Combining 2D Ptychographic and Tomographic Gradients”. *International Conference on Image Processing (In Review)*.
- P. Shedligeri, **S. Barutcu**, P. Ruiz, F. Schiffrers, A. Katsaggelos, O. Cossairt. (2020). “Effects of Regularization on Automatic Differentiation Ptychography.” *German Conference on Pattern Recognition (In Review)*.
- **S. Barutcu**, L. Arslan. (2017). “Topic Classification Using Bidirectional LSTM Neural Networks.” *Bogazici University Undergraduate Thesis*. Print.