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| **SEMIH BARUTCU** | | | | | |
| [semihbarutcu@u.northwestern.edu](mailto:semihbarutcu@u.northwestern.edu) | | [sbarutcu.github.io](https://sbarutcu.github.io/) | | | | |
| 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**   |  |  | | --- | --- | | *Scripting Languages:* | Python, MATLAB, Java, C / C++, Bash, Verilog, SQL, LaTeX | | *Tools/Libraries:* | PyTorch, TensorFlow, Keras, Scikit-Learn, Pandas, Numpy/Scipy, Matplotlib | | | | | | |
| **EXPERIENCE** | | | | | |
| **Image Processing and Deep Learning Research Assistant** | | |  | | *Sept 2017 – Present* |
| *Northwestern University – Katsaggelos’ Image and Video Processing Laboratory* | | | | | *Evanston, IL* |
| * Developing deep learning techniques for computational microscopic imaging methods, combining x-ray ptychography, computational tomography, and laminography. * Building neural networks for detection of Covid-19 and Cardiac Amyloidosis from chest x-rays. * Improving segmentation of lung lesions in CT via encoder-decoder networks * Exploring machine learning solutions to problems in computer vision and biomedical imaging | | | | | |
| **Computational Science Intern / Senior Computational Science Intern** | | |  | | *June – Sept 2020* |
| *Argonne National Laboratory – The Advanced Photon Source* | | |  | | *& June – August 2018* |
| * Creating GANs for elimination of missing wedge problem in inverse tomography and laminography. *Lemont, IL* * Developing and implementing an iterative algorithm on direct coupling of computational   tomography and x-ray 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* | |
| *Aselsan Defense Industry Inc* | | |  | *Ankara, TR* | |
| * Application virtualization for computer programs specific to the industry | | | | | |
| **Digital Design Engineering Intern** | | |  | *June – July 2015* | |
| *Meteksan Defense Industry Inc* | | |  | *Ankara, TR* | |
| * Designing a PCB to be used as a Video DAC and driving it using HDL | | | | | |
| **SELECTED PUBLICATIONS** | | | | | |
| * **S. Barutcu** *et al*. (2020). “Simultaneous 3D X-Ray Ptycho-Tomography with Gradient Descent”. *Proceedings of International Conference on Image Processing (ICIP)*. * **S. Barutcu** *et al*. (2021). “Limited-Angle CT with Physics-Based Deep Image Priors”. *Nature* - *Scientific Reports (In Review).* * R. M. Wehbe**, S. Barutcu** *et al*. (2020). “DeepCOVID-XR: An Artificial Intelligence Algorithm to Detect COVID-19 on Chest Radiographs Trained and Tested on a Large US Clinical Dataset”. *Radiology*. * P. Shedligeri, **S. Barutcu** *et al.* (2021). “Improving Acquisition Speed of X-Ray Ptychography through Spatial Undersampling and Regularization.” *Proceedings of International Conference on Image Processing (ICIP) (In Review)*. * **S. Barutcu**, L. Arslan. (2017). “Topic Classification Using Bidirectional LSTM Neural Networks.” *Bogazici University Undergraduate Thesis*. Print. | | | | | |