Nikola Janjušević

Brooklyn, NY ◇ npj226@nyu.edu ◇ https://nikopj.github.io

Education

New York University, Tandon School of Engineering, Brooklyn, NY
Ph.D Candidate in Electrical and Computer Engineering, GPA: 3.99/4.0 2019-Present
Advisor: Professor Yao Wang, NYU Video Lab, NYU Wireless Lab
Telephonics Corporation Research Fellowship 2020-2022
K-12 STEM Fellowship 2019

The Cooper Union for the Advancement of Science and Art, New York, NY
Bachelor of Engineering, Electrical Engineering, Magna Cum Laude 2015-2019
Minor in Computer Science
Half-Tuition Scholarship, Innovator's Merit Scholarship 2015-2019
Radio Club of America Scholarship Award 2019

Research Experience

Deep Convolutional Dictionary-Learning (preprint), *NYU* Fall 2019-Present
- Derived natural image denoising neural net from convolutional sparse-coding algorithm
- Leveraged noise-adaptive thresholding to yield near-perfect generalization to unseen noise-levels
- Extended generalization to joint-denoising-and-demosaicing task and unsupervised learning

Unrolled Primal-Dual Splitting for Optical-Flow Estimation, *NYU* Fall 2021-Present
- Formulated neural net architecture from classical TVL1 optical-flow algorithm
- Embedding coarse-to-fine warping and total generalized variation based attention mechanism
- Exploring view extrapolation via occlusion aware in-painting

Fast Novel View Synthesis for Video, *Samsung Research America* Summer 2021
- Surveyed state-of-the-art deep-networks for single and multi-input novel view synthesis
- Applied frame-interpolation and in-painting based methods to view synthesis of video signals
- Presented literature survey and proposal network, internally

Deep Graph Convolutional Network, *NYU* Fall 2020
- Implemented *Graph Convolutional Denoising Network* in PyTorch
- Developed dynamic receptive field visualization tools for *Edge Conditioned Convolutions*
- Enabled memory aware multi-GPU training

Teaching Experience

Senior Instructor and Curriculum Designer Summer 2019
NYU Tandon Summer STEM Program
- Led design of two-week Machine-Learning course for High School students
- Guided students from introductory Linear-Algebra to successful projects in Deep-Learning
- Lecture material and assignments available at `https://github.com/nikopj/SummerML`

Lead Teaching Assistant Summer 2016, 2017
The Cooper Union Summer STEM Program
- Led six-week Digital-Logic design course of 35 High School students
- Lectured on Digital-Logic and engineering design principles
- Supervised student's work and mentored group projects

Skills

Languages	English (Native), Mandarin (Conversational), Serbian (Conversational)
Computer Languages	`Python`, MATLAB, `Julia`, `C`, `C++`, `Bash`
Software Tools	PyTorch, Tensorflow, Flux, LaTeX, Vim, Linux