

## SUMMARY

Innovative DevOps engineer with a strong Linux background and 4+ years of experience designing, automating and managing mission critical infrastructure deployments by leveraging configuration management tools and other DevOps processes. Expert in scripting using python with an emphasis on real-time, high speed data pipelines and distributed computing across networks.

## EDUCATION

- **NYU Polytechnic School of Engineering**  
*Master of Science in Telecommunication Networks*  
*Thesis - CitySynth: Imaging with a Network of Devices*

Brooklyn, NY  
Aug. 2012 – May. 2014

## EXPERIENCE

- **NYU CUSP**  
*Associate Research Scientist*  
*Assistant Research Scientist*

Brooklyn, NY  
May 2015 - Present  
June 2014 - May 2015

- **Dockkeeper:** Developed a scalable and secure container scheduling and monitoring tool that leverages the docker ecosystem and prometheus for provisioning services on physical hosts. This helped eliminate the VM license fees of over \$35,000 per year and optimizing the efficiency of hosts by over 55%.  
Deployed a multi-node kubernetes cluster for exposing load-balanced web applications on the web.
- **Vizwall:** Deployed a 27 screen video wall using a cluster of networked raspberry Pi's enabling researchers to interpret their visualizable data, evaluate their models and make better decisions, while keeping the whole price to 1/8 th of that of a commercial solution.
- **UOInfra:** Architected the NYU/CUSP Urban Observatory's multi-site physical infrastructure consisting of multiple dense compute and storage nodes comprising of over half a petabyte of storage space, provisioned for multi-user mini-HPC environments, using Ansible and Packer.  
Deploying VMs using Virtualbox and its API for ingesting data streams from multitudinous sensor deployments.
- **SONYC:** Developed a secure machine critical IoT platform and implemented CI/CD framework for deploying and maintaining over 100 urban noise monitoring sensors in NYC. This project has won the \$ 4.6 Million CPS frontier award from NSF. An innovative lifeline beacon based approach helped reduce the time to revive sensors in the field from ~2 week per node to less than 1 hour per node, improving the efficiency of the team and the sensor network.

## PROJECTS

- **CUIC:** Open source python library for interfacing with GigE vision broadband, thermographic and hyperspectral cameras using advanced message queuing protocol to acquire images and perform pre-processing on-the-fly.
- **UCSLHUB:** Developed a resilient and scalable back-end infrastructure using docker swarm, jupyterhub and keycloak for hosting the CUSP's UCSL bootcamp which will be accessed by hundreds of students every year.

## PUBLICATIONS

- **Persistent Hyperspectral Observations of the Urban Lightscape** *IEEE GlobalSIP, 2018*  
Training a supervised classifier to automatically determine location of light sources on persistent hyperspectral imaging of the New York City urban lightscape, with  $\sim 7.2 \times 10^{-4}$   $\mu\text{m}$  spectral resolution, surveyed over 25 consecutive summer nights over a 6 minute time resolution using Dockkeeper infrastructure.
- **A Hyperspectral Survey of New York City Lighting Technology, 2016** *Sensors, 16, 12*  
Using a scanning, single channel spectrograph to identify the lighting technologies in use in the NYC
- **Hypertemporal imaging of NYC Grid Dynamics, 2016** *BuildSys '16*  
Demonstrating the concept of capturing the 120 Hz flicker of lights across a NYC skyline as a proxy to indicate the health of distribution transformers
- **Dynamics of Urban Lightscape, 2015** *Information System, 54, 115*  
Using a network of cameras to understand *the pulse of the city*

## TEACHING EXPERIENCE

- **Urban Computing Skills Lab at NYU** *2014 - 2019*  
Instructor for summer boot camp course on introduction to Python and SciPy packages.
- **Advanced Topics in Urban Informatics at NYU** *2016, 2017, 2019*  
Instructor for a 3 week intensive course on topics including Wireless Sensor Networks, IoT and Microservices
- **Advised NYU/CUSP graduate student Denis Khryashchev** *2015 - 2016*  
project: *Social Pattern Detection by scanning GSM downlink spectrum*