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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** — Brooklyn, NY, USA
  Master of Science in Telecommunication Networks — *Aug. 2012 – May. 2014*
  Thesis - CitySynth: Imaging with a Network of Devices

Experience

- **Workday** — Victoria, BC, Canada
  Software Development Engineer II, DevOps — *May 2019 - Present*

- **NYU CUSP** — Brooklyn, NY, USA
  Associate Research Scientist — *May 2015 - May 2019*
  Assistant Research Scientist — *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.
  - **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.
    Deployed a 27 screen vizwall using a cluster of networked raspberry Pi's enabling researchers to interpret their visualizable data, while keeping the whole price to 1/8 th of that of a commercial solution.
  - **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 ~7.2 x 10^{-4} µm 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*