

andrewdunn

Computing for Analytical or Creative Experiences

Motivated by computing with appropriate abstraction, clearly understanding and evangelizing methodologies, and seeing the results be realized into creative experiences or analytical stories.

locus

Grand Rapids, MI

contact

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networking

nftables, switchdev,
wireguard,
systemd-networkd,
ØMQ, Cumulus,
Mikrotik, VyOS

segmentation

podman, kvm, lxc,
systemd-nspawn,
docker

distros

fedora, debian, arch

laC

pyinfra, ansible

forge/CI

gitlab,github,make

programming

Python, C, Java, Bash

data

pandas, blaze, dask,
SQL, sqlalchemy,
mongodb, hadoop

analysis

jupyter, scipy/numpy,
simpy, inspyred,
statsmodels,
scikit-learn, pymc, R

presentation

L^AT_EX, hugo, flask, jinja2,
django, pelican

experience

Department of Defense

Research Computer Scientist

Technical leader in Modeling and Simulation business unit(s) specializing in physics, stochastic, and behavioral simulation. Progressive computing evangelist focused on complex workload distribution. Adoption, contribution, and financial prioritization of upstream Open Source Initiatives. Author of research publications and military data standards.

- Constructed "Skunkworks" of asynchronous tooling enabling BYOD style high-trust computing, set cultural standards for technical proficiency, shepherded heavy growth during quarantine shift to fully remote work.
- Developed laboratory "campus" networking utilizing open source (Linux switchdev), custom port security, and extensive use of wireguard.
- Developed DoD accredited autonomous network for enabling laboratory computing, served as System Owner.
- Developed laC based workload distribution strategy for heterogeneous computing systems used to remote-render simulation that human participants interacted within.
- Deployed in conventional TierIII datacenter, constructed laboratory TierI datacenter within classified space, constructed mobile (tractor trailer) based datacenter.
- Developed novel workload distribution for evolutionary based optimization strategies in exploration of electrical grid simulation.
- Open Source Engagement
 - (issue, mailing, irc) systemd, nftables, podman, switchdev, fedora, debian, arch, gitlab, gitea, mattermost, phabricator
 - Participation in DENT working groups Roadmap and Features, Upstream. Strategic engagement with Sartua on campus feature sets in kernel or userspace for newly released silicon.
 - Strategic engagement with TensorWorks on PixelStreaming, Container based Linux native deployment, Stream Scaling, WebRTC Limits, Reinforcement Learning, and time-synchronized data export.
 - Scoping and financial prioritization for Mixed mTLS Auth Proxy with IDI, Kanban in Gitea Ory Gitlab Integration, and several more smaller efforts.

selective publications

Luus-Jaakola Optimization Procedure for Ramsey Number Lower Bounds

International Journal of Mathematics and Computer Science 10.1 (2015) pp. 57–68. 2015

Simulation of Microgrid and Mobile Power Transfer Systems interaction using Distributed Multiobjective Evolutionary Algorithms

Proceedings of the 2014 Ground Vehicle Systems Engineering and Technology Symposium (2014). 2014

education

2014-2015 **M.Sc.** Predictive Analytics (unfinished)

Northwestern University

Statistical Modeling, Data Science, Financial Analysis

2005-2010 **B.Sc.** Computer Science

Kettering University

Thesis: Algorithms for Autonomous Diagnostics of Electrical Power System