

Charles Cossé

Software R & D | Las Vegas, NV | (702) 613-2782

Web Applications Developer 2017-2018

Self-employed, Las Cruces NM

- Developing web version of legacy physics analysis software with d3js and dynamic SVG
- Developing neon-themed math scrabble game with d3js and dynamic SVG animation
- NetDispenser: edu-kiosk and free education software incentivizer
- Developed secure, embedded banking platform with Django, Javascript, Docker, Luks
- AWS consulting

Web Applications Developer 2015-2016

Ministry of Natural Resources, Georgetown Guyana

- Established centralized GIS data hub for use by all government ministries
- Developed interactive, maps-based website for Protected Areas Commission
- Developed and taught course on GIS programming with Javascript and Django

Entrepreneur 2013-2015

Asymptopia Software, Las Cruces NM

- Developed prototype e-learning platform that makes kids earn their internet access.
Technologies include: Linux, Raspberry Pi, Apache, Django, Javascript, OpenLayers

Sr. R & D Software Developer 2000-2013

Physical Science Laboratory, NMSU

- Real-time 3D fluid dynamics and physics based graphics for Army flight simulators
- Developed platform for transition of validated Army smoke models to OpenGL
- Lead web developer for fielded Army weather toolkit
- Developed real-time wavelet-based video tracking system for Army
- Developed prototype system for passive detection of nuclear contraband
- Physics simulations with New Mexico's Encanto supercomputer
- Simulations and detector design for two international astrophysics collaborations
- Cyber-security and dynamic network visualization projects
- Collaborated with numerous companies, agencies and institutions
- Wrote proposals and helped secure several large contracts

Physics Faculty 1998-2000

Francis Marion University, Florence SC

- Taught undergraduate physics and developed interactive physics demonstrations

Graduate Physics Research 1994-1998

Particle Astrophysics Laboratory, NMSU

- International Experimental Astrophysics Collaboration
- Developed software tools for real-time physics analysis and visualization

Physics Faculty 1991-1993

United States Peace Corps, Kimang'etti Secondary School, Kenya

- Taught physics and math at rural secondary school; traditional dance project

Education

- **PhD Physics**, New Mexico State University **2004**
“A measurement of the ground level electron spectrum from 0.1-10 GeV/c”
- **MS Physics**, New Mexico State University **1998**
“Cosmic AntiProton Ring Imaging Cherenkov Experiment, CAPRICE”
- **BS Physics**, Fort Lewis College, Durango CO **1991**

Selected Presentations

- Rendering Real-time Data using Python and Javascript, PDX Code Guild **2016**
- GIS Web Applications with Javascript, Guyana Geology and Mines Commission **2016**
- Real-time 3D Navier-Stokes for Obscurant Modelling, Huntsville AL **2012**
- Frameworks For Physics, USAF Space Weather Directorate, Boston MA **2008**
- Muon Camera System For Passive Detection of Nuclear Contraband, NMSU **2006**
- A Work of Nature, SE Section of American Physical Society, Raleigh NC **1998**

Selected Papers

- Electron Measurements with the High Energy Particle Calorimeter Telescope (NASA-HEPCaT) **2009** J.W. Mitchell et al, Proceedings of the 31st ICRC, Lo'dz', Poland
- The Orbiting Astrophysical Spectrometer In Space (NASA-OASIS) **2009** M. Christl, et al., Proceedings of the 31st ICRC, Lo'dz', Poland
- A Measurement of the Ground Level Electron Spectrum from 0.1 - 10 GeV/c **2004**

Selected Links

- <https://beta.observablehq.com/@ccosse>
- <https://us.pycon.org/2017/schedule/presentation/643/>
- <http://netdispenser.github.io>
- <http://ccosse.github.io>

Technologies Summary

- **Javascript 2006-2018**
 - D3js, SVG, AJAX, Topojson, JSON, OpenLayers, GDAX Bitcoin API, Electron, ES6, Node, JQuery, JQuery Mobile, ThreeJS, Bootstrap, JSRoot
- **Python 1999-2018**
 - Python3, Python2, Django, Geonode, PyGame, Jython
- **C++ 1995-2013**
 - OpenSceneGraph, OpenGL, GEANT4, MPI, wxWidgets, Histoscope, Cernlib
- **Linux 1994-2018**
 - AWS, Linode, Supercomputers, Gentoo, Debian, RedHat, SuSE, Ubuntu
- **Other**
 - Apache, Nginx, Flask, Tomcat, Wsgi, Docker, Luks, CSS3, Cyber- Security, WebSockets, Raspberry-Pi, Network Programming, RPC, Databases, C/Make