Caleb Madrigal

I help pull the signal out of the noise. With Machine Learning, there's a lot of noise - noisy data (which needs to be cleaned and transformed), noisy processes (e.g. what model version is running in production? What data was that model trained on?). I can help add structure to such environments (such as via ML Pipelines). I also love math, and can help develop both Machine Learning Models as well as other sorts of computational models.

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- 414-215-0003
- https://madconsulting.ai/
- https://calebmadrigal.com
- https://github.com/calebmadrigal
- https://www.linkedin.com/in/calebmadrigal

Experience

Mad Consulting

- *ROLE:* Co-Founder, *January 2020 - Present*
- *Technologies:* Python, React, Tensorflow, Keras, Jupyter, Spark
- Data Engineering infractucture (ETL pipelines, transformations, model development, performance tracking, etc).

Mandiant/FireEye

- *ROLE:* Senior Software Engineer, *April 2015 - January 2020*
- *Technologies:* Python, C, ctypes, redis, Node.js, Mac, Linux, Windows
- Wrote host-side (agent) and server-side software for Incident Response investigations.
- Software automates various Incident Response scans, and provides consultants with powerful investigative capabilities.

SpiderLogic

- *ROLE:* Software Consultant, *March 2011 - April 2015*
- *Technologies:* Node.js, Java, .NET, Objective-C, Javascript
- *Industries:* Financial planning, insurance, healthcare
- Various projects for clients.

Astronautics Corporation of America

- *ROLE:* Software Engineer, *June 2008 - March 2011*
- Wrote software in the C programming language for the Airbus A400M Network Server System (NSS).

Hitcents

- *ROLE:* Software Engineer, *August 2006 - May 2008*
- Developing an Enterprise Resource Planning (ERP) system.

Teksouth

- *ROLE:* Programming Summer Intern, *May 2005 - August 2005*

Speaking

DEF CON 2017

- *Topic:* Controlling IoT devices with crafted radio signals
- Presentation: https://www.youtube.com/watch?v=qhuhJ9Oe9vA

THOTCON 2018

- *Topic:* Inferring wireless camera motion detection without being connected and other 802.11 IoT hacks
- Presentation related software: https://github.com/calebmadrigal/trackerjacker

DEEPSEC 2018 (in Vienna)

- *Topic:* Inferring wireless camera motion detection without being connected and other 802.11 IoT hacks
- Presentation related software: https://github.com/calebmadrigal/trackerjacker

THOTCON 2017

- *Topic:* Intercepting, modifying, and generating wireless signals with SDR

Cyphercon 2017

- *Topic:* Tracking/monitoring WiFi devices without being connected to any network

Cyphercon 2017

- *Topic:* Tracking/monitoring WiFi devices without being connected to any network

Cyphercon 2016

- *Topic:* 2 mini-talks: Hypervault and Tunneling
- Hypervault app presented on: https://hypervault.github.io/
- Tunneling topic notes: http://calebmadrigal.com/dns-tunneling-with-iodine/

O'Reilly Open Source Convention (OSCON) 2015

- *Topic:* Building a modern UI for programmers
- How to quickly build a descent UI if you're not a designer

O'Reilly Open Source Convention (OSCON) 2013

- *Topic:* Sound Analysis with the Fourier Transform and Python
- Presentation Notes/Code: https://github.com/calebmadrigal/FourierTalkOSCON

Milwaukee Barcamp 2011

- *Topic:* Using Transparent HTTP Proxies for Live Web Traffic Manipulation
- Code used:
  https://github.com/calebmadrigal/PythonScripts/blob/master/networking/httpproxyserver.py

Side Projects/Research

https://gods.art

- I paint with math at https://gods.art/

Tracker Jacker

- https://github.com/calebmadrigal/trackerjacker
- Monitors raw 802.11 frames to do things like:
  - Track a person by their phone's MAC
  - Detect when motion-sensing security by looking for a threshold of traffic (indicating video upload)

Truthy Graph

- Live app: https://truthygraph.github.io/
- Simple graphing app which graphys "truthiness" of an equation (a gradient of how close to equal the two sides of the equation are).

SDR Radio hacking scripts

- https://github.com/calebmadrigal/radio-hacking-scripts
- Various scripts for capturing and signals with SDR.

Vanguard investment analysis

- https://github.com/calebmadrigal/investment-analysis
- Analyzed historical returns of Vanguard mutual funds to help me understand things like how volatility and expected return are correlated, and to help me find the best mutual funds to invest in.

Home Security System

- http://calebmadrigal.com/raspberry-pi-home-security-system/
- For fun and security, I built a home security and automation system.
- Hardware: RaspberryPi, hacked remote controlled outlet set, hacked magnetic sensor
- Software: Python, Flask, jQuery Mobile, ZeroMQ

Education

- Bachelor's degree in Computer Science - Western Kentucky University
- Varius post-graduate studies in ML and Math.