JAY CULLIGAN

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PROFESSIONAL EXPERIENCE

Cequence Security, Sunnyvale, CA, USA   **Jan 2019 - present**

Data Scientist
- Increased malicious botnet detection for Cequence's Bot Mitigation SaaS Platform by an average of 20%, using a range of rules and machine learning pipelines on HTTP request data.
- Lead the response to multiple web application attacks, working closely with external engineering and security teams - increasing Cequence's CQ-AI consultancy and threat reporting services annual revenue by $600K+.
- Created a range of Kibana dashboards and automated visualizations for internal threat monitoring, system health, and external weekly threat reports.

Insight Data Science, San Francisco, CA, USA   **Sep 2018 - Dec 2018**

Data Science Fellow
- Developed Plutarch, a web-app that uses natural language processing to provide personalized history podcast recommendations.
- Built a pipeline using Word2Vec to find content based on semantic similarity to user-inputted text.

Okinawa Institute of Science and Technology, Onna, Okinawa, Japan   **Nov 2017 - Aug 2018**

Postdoctoral Scholar
- Applied neural network classifiers with Keras and Tensorflow to investigate the color-changing capabilities of cuttlefish.
- Used Generative Adversarial Networks (GANs) to model camouflage adaptation to diverse environments based on predator visual capabilities.

University of Sussex, Brighton, East Sussex, UK   **Sep 2013 - Oct 2017**

Postgraduate Researcher
- Conducted a range of experiments using digital image analysis, inferential statistics, as well as, unsupervised and supervised models to investigate the visual and rapid camouflage capabilities of cephalopod species.
- Used logistic regression classification on Gabor filter outputs of cephalopod images, tuned to predator visual capabilities, to support theories on disruptive camouflage.
- Applied Gaussian Mixture Models (GMMs) with Principal Components Analysis (PCA) on scored images of cephalopod camouflage patterns to suggest cephalopod patterning is continuous, not discrete.

EDUCATION

PhD, Biology, University of Sussex   **2017**

Bachelor of Science, Biology, Minor in Psychology, Indiana University   **2013**

Languages
Python, SQL, MATLAB, Java*, Scala*, R* (* indicates familiarity)