Matthieu Gay-Bellile

Software Engineer / Penetration Tester

Atlanta, GA

+14046300386

matthieu.gb@gatech.edu

avilad.github.io

Work experience

Wreck Techs – Residential Technology Advisor
August 2017 - Present

Georgia Institute of Technology

- Performed maintenance work on the Georgia Tech network
  - Maintenance work includes replacing cabling, punching down network jacks, and surveying the wireless network
- Provided technical support to Georgia Tech students
  - Assisted students with network access, malware removal, operating system repair, and software installation

Cybersecurity "Red Team" – Penetration Testing Intern
May 2017 - August 2017

Duke Energy

- Discovered and reported a critical flaw in corporate identity & access management systems
  - A malicious user exploiting this flaw could circumvent physical access controls almost entirely
- Designed and developed an internal web interface to request penetration tests from the Red Team
  - Intended to replace clunky and poorly-designed Word document forms
  - Uses Redis Pub/Sub for a pluggable, event-driven architecture, allowing for unlimited future expansion

Mobility and Analytics – Software Development Intern
May 2016 - August 2016

Duke Energy

- Designed and developed a website for internal "Innovation Challenge" employee innovation program
  - Built on a MEAN (MongoDB, Express, Angular (2.0), Node.js) stack with Bootstrap 4 UI
  - Highly decoupled MVC design with REST API backend
- Developed a framework to integrate energy usage reporting services with the Amazon Echo smart speaker
  - Leverages Amazon's AWS Lambda and Alexa Skills Kit platforms, built with Node.js

Education

Bachelor of Science in Computer Science
August 2015 - May 2019 (Expected)

Georgia Institute of Technology

Degree concentrations: Systems & Architecture / Artificial Intelligence

GPA: 3.52, Major GPA: 3.76

Projects / Open-Source Contributions

Pawgistics Web App

Degree capstone web app project - in progress

- Built for Canine Assistants, a non-profit organization that trains service dogs for people with physical disabilities, seizure conditions or other special needs
  - Application tracks volunteers, staff instructors, and dogs to facilitate coordination and maintain chain of custody of dogs, as well as better record-keeping
- Modern, API-backed, client-side single-page web app built with Node.js, Express, and React + Redux
- Build pipeline with full hot-reloading support for minimal development friction, or performance-tuned production build with bundling, minification, and compression

FluidSim iOS App

iOS fluid simulation

- Implemented smoothed-particle hydrodynamics algorithm in C++, based on an existing C# implementation
- Added variable gravity based on device accelerometer, and touch interactions with the fluid
- Wrote post-processing routines in OpenGL ES to draw discrete simulation particles as a smooth, continuous fluid
  - Enabled customization of fluid appearance, color, and physics through in-app menus and flexible shaders
- Designed custom UI using iOS Storyboards and Objective-C

logKext

Kernel-level keylogger for OS X

- Tracked down and fixed a kernel panic bug that crashed OS X 10.9, making the program unusable
  - Determined cause by cross-referencing disassembly of IOKit device driver framework and sources found online
- Released updated version, with support of the original developer

Skills

Programming Languages:

JavaScript / TypeScript, C, C++, Python, Java, HTML, CSS / SASS, C#, Objective-C, GLSL

Frameworks and Platforms:

Node.js, Express, React, Angular, Bootstrap, scikit-learn, AWS, DynamoDB, MongoDB, Redis, Alexa Skills Kit, Git

Security Tools:

Kali Linux, Metasploit Framework, Nmap, Wireshark, hashcat, Burp Suite, sqlmap, Responder, mimikatz