Matthieu Gay-Bellile

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avilad.github.io

EDUCATION:

GEORGIA INSTITUTE OF TECHNOLOGY **Atlanta, GA**
Bachelor of Science in Computer Science – Expected Graduation: May 2019 *August 2015 – Present*
GPA / Major GPA – 3.45 / 4.0

INTER-COMMUNITY SCHOOL ZURICH **Zumikon, Switzerland**
International Baccalaureate Diploma – Graduation: May 2015 *August 2013 – June 2015*
SAT Scores – Math: 800, Reading: 800, Writing: 710

WORK EXPERIENCE:

Duke Energy **Charlotte, NC**
Cybersecurity Assessment "Red Team" – Penetration Testing Intern *May 2017 – August 2017*
Largest electric power company in the United States, serving over 7 million customers.

- 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

Duke Energy **Charlotte, NC**
Mobility and Analytics – Software Development Intern *May 2016 – August 2016*
Largest electric power company in the United States, serving over 7 million customers.

- 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

Cybedroid **Limoges, France**
Software Development Intern *July 2014 – August 2014*
Robotics startup, specialized in the development and production of humanoid service robots.

- Adapted C# robotic framework for use with Mono on Linux
- Created face-tracking, head-following, and manual control software for articulated robot heads

PROJECTS / OPEN-SOURCE CONTRIBUTIONS:

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:

Security tools:	Kali Linux, Metasploit Framework, Nmap, hashcat, Burp Suite, sqlmap, Responder, mimikatz
Programming languages:	Python, JavaScript / TypeScript, Java, C#, C, C++, HTML, CSS / SASS, Objective-C, GLSL
Frameworks and platforms:	Node.js, Express, Angular, Bootstrap, MongoDB, Redis, Slack API, Alexa Skills Kit, Git