

# Graham Bleaney

Web | [bleaney.ca](http://bleaney.ca)  
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## Skills

**Languages:** Python, C++, C#, Java, JavaScript, SQL, HTML, CSS  
**Technologies & Tools:** AngularJS, ANTS Performance Profiler, AWS, Burp Proxy, Elasticsearch, Hadoop, Jenkins, jQuery, PostgreSQL, Pyre/Pysa, PySpark, ReSharper  
**Operating Systems:** Windows, Linux (Various), OS X

## Accomplishments

Graduated with **First in Class, Dean's Honours List**, and Sandford Fleming Co-op Proficiency Awards  
Published [paper](#) on **Machine Learning for Product Safety**; presented work to 200+ attendees at academic ([IEA/AIE](#)) and industry ([ICPHSO](#)) conferences  
Placed **2nd in all of Canada** for Engineering Debate

## Work Experience

### facebook

Application  
Security Engineer

New York, S'19

Identified discrepancies in security coverage between products and implemented plan to achieve parity  
Created **automated detections** for python code using Pyre Static Analysis (PySA) to identify and prevent potential vulnerabilities at the code review stage. See my open source contributions to the project [here](#)  
Reviewed C++ code and identified issues such as use-after-free, **SQL injection**, and out of bounds reads

### Bloomberg

Software Developer

New York,  
S'17 - Present

Ran team of five engineers working on BAS, a C++ microservice platform supporting 10,000+ services, 20,000+ machines, and **4+ billion requests an hour**  
Reduced outages by 50% by leading an effort to address root causes with software and procedure changes  
Created continuous integration and delivery system using Jenkins and Python, to package and release 30+ libraries and applications to 20,000+ servers running **Linux, Windows, Solaris, and AIX**

### Palantir

Application  
Security Engineer

Palo Alto, S'16

Identified vulnerabilities capable of **complete server compromise**, via Burp Proxy and white box inspection  
Reviewed code, infrastructure configurations, and software architectural designs, for security implications  
Communicated vulnerability severity, and recommended remediation steps, to affected developer teams  
Coordinated penetration tests, from initial contact with teams through to final signoff for product release

Forward Deployed  
Engineer

New York, F'15

Created situational awareness and asset investigation tools to improve security of Fortune 50 client  
Developed **PySpark** jobs to process **terabytes** of data, stored in **Hadoop**, to detect malicious data exfiltration  
Built data visualizations using JavaScript and CSS, backed by **PostgreSQL** and **Elasticsearch**

### Bloomberg

Software Developer

New York,  
S'14, F'15 - W'16

Authored and presented a paper ([P0213R0](#)) to the **C++ Standards Committee's** Library Evolution Working Group, benchmarking the runtime performance benefits of proposed local memory allocation strategies  
Created **cross-platform C++ library** components running on 32 and 64-bit Windows, Linux, OS X, AIX, Solaris  
Implemented a new hashing system, **improving hash table performance by up to 11x** in benchmarks

### yelp

Product Manager

San Francisco, W'15

Coordinated international teams of engineers to plan, develop, and release features to 140 million users  
Performed data mining using **SQL** and **Python** (Pandas, matplotlib) to make data driven decisions  
Improved **machine learning** models with additional features to detect duplicate listings with 99% precision

### Desire2Learn

Software Developer

Kitchener, W'13

Identified **security** vulnerabilities including SQL Injection, CSRF, XSS, and missing authentication  
Architected and implemented a grade calculation service using the ASP.NET MVC framework in **C#**  
Redesigned user progress menus using **HTML, CSS, and JavaScript**

## Education



Sept '12 - Apr '17

Awarded Bachelor of Applied Sciences in Honours Systems Design Engineering With Distinction

**Relevant Courses:** Machine Intelligence (96%), Programming for Performance (90%), Real Time Systems (92%), Pattern Recognition (95%), Optimization and Numerical Methods (81%), Software Design (95%), Data Structures and Algorithms (96%), Digital Computation - C++ (92%), Human Factors in Design (92%)

## Academic Achievements

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Sept '12 - Apr '17

**Awards:** Dean's Honours List, Sandford Fleming Foundation (SFF) Junior Design Competition Award, SFF Work Term Report Award, SFF Debate Award (x2), ANSYS Design Analytics Competition Award

**Scholarships:** President's Scholarship of Distinction, Engineering Faculty/Staff Upper Year Scholarship, First in Class Scholarship, President's International Experience Scholarship

## Personal Projects

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- Security Research** Uncovered vulnerabilities in **Venmo** (a **PayPal** product) capable of stealing user's credentials and money  
*Jan 2013 - Present* Developed proof-of-concept account takeover worm for Pixelapse (a **Dropbox** product)  
Identified and privately disclosed **XSS**, **CSRF**, **SQL Injection**, and missing authentication in various sites  
Designed "Capture the Flag" game allowing students to test their security skills (Try it: [bleaney.ca/CTF](http://bleaney.ca/CTF))
- Distributed Computing Router** Developed router software to create a **distributed computing network** comprised of Wi-Fi users' browsers  
*Sept 2014* Created backend using Apache2 and PHP to serve jobs and track progress  
Configured Linux iptables to capture newly connected users and those not completing jobs
- Route Optimizer** Developed application optimize errands within user's broad constraints (type of store, chain, etc.)  
*Jan - Apr 2013* Created user interface using **JavaScript**, **HTML**, and **CSS** with seamless **AJAX** client-server interactions  
Leveraged **Google Maps API**, **Google Places API**, and **jQuery** to expand the functionality of Google Maps

## Academic Projects

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**Total Recall**  
*Aug '16 - Apr '17*

Created a system using **machine learning** to automatically identify product safety issues in online reviews  
Developed models in python using scikit-learn, and web scraping engine using scrapy  
Interviewed dozens of industry professionals to iteratively develop features and user interface  
[Paper](#) published and presented at **IEA-AIE 2018 academic conference** and IPHSO industry conference



**Contact Manager**  
*Jan - Apr 2016*

Created a tool to manage information about a user's contacts and raise relevant alerts such as gift ideas  
Implemented backend using Apache Tomcat (Java) backed by a MySQL database  
Architected system to use an event based architecture and design patters including adapters and facades



**Shopping Cart**  
*Sept - Dec 2013*

Designed a shopping cart to track items placed in the cart, removing the need to unload at the checkout  
Built a fully functional prototype using RFID chips, a scanner, and a Java Swing based GUI  
Applied rigorous engineering design process from needs analysis to prototype development and testing



**Obesity Solution**  
*Jul - Oct 2012*

Led 42 people on business, marketing, and development teams, to develop a business plan for software that reduces childhood obesity by requiring children to be active to unlock computer time  
Managed time to be able to learn **C++**, develop the software, and attend the intensive Shad Valley program  
Placed 2nd overall in National Shad Cup, placing **1st** for Business Plan and **2nd** for Application of Theme

## Contests

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**Debate** - Placed 1st at Waterloo and Ontario Engineering Competitions, 2nd in Canadian Engineering Competition

**Hackathons** - Hack the North, Yelp Hackathon, and Bloomberg Coding Challenge

**Engineering** - Waterloo Engineering Completion (won Sandford Fleming Award twice)

**Computer Science** - Canadian Computing Competition (Top 5%), Google Code Jam, DWITE

**Security** - University of Illinois Urbana-Champaign Capture the Flag competition (Placed 17th of 288)

**Math** - Canadian Senior Mathematics (Top in school) and Euclid Math Contests (Top in school)