



**THE HIGHER STAKES  
OF ONLINE HIGHER  
ED: SHE SAID, HE  
SAID...**

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# Cutting-Edge Technologies of 1998

US  
Mail

Audio &  
Video  
Tapes

Satellite  
Broadcast

S



World Wide Web

E-mail

Video  
Conferenci  
ng

Closed-Circuit  
Cable TV

# Online Security Challenges

Social Media  
& Paper Mills

100,000+  
Students

Over 140,000  
Assessments  
a Month



Competency -  
Based

764 Courses

Around  
40,000  
Assessment  
Items  
Performanc  
e and  
Objective  
Assessment  
s

# Online Security Challenges

- Number of test takers and lack of control
- How they access content and
- How they are sharing the content
- Where are they sharing content

# Performance Assessments

```
graph TD; A[Performance Assessments] --> B[Plagiarism Checker]; A --> C[Originality Review]; B --> D[Overall & Individual Similarity Indexes]; B --> E[Matching Sources]; C --> F[Metadata]; C --> G[Parallel Thought, Synonym Usage]; C --> H[Crediting Sources, APA Format];
```

Plagiarism  
Checker

Overall &  
Individual  
Similarity  
Indexes

Matchin  
g  
Sources

Originality  
Review

Metadat  
a

Parallel  
Thought,  
Synonym  
Usage

Crediting  
Sources,  
APA  
Format



# Originality Report

One of the things that happens when your project is successful is that it grows. It grows in the number of engineers, and that only compounds the other growth: source lines of code.

One of the things that happens when your project has 100k or 1m SLOC is that it takes longer and longer to build the whole thing. That brings your productivity to a crawl, along with all those other engineers that wrote so much code.

This is a problem with an obvious solution: split the project up into smaller projects, each of which is quicker to build. This is typically done in frontend projects by having multiple "packages" (in the npm sense), either in one monorepo or across several repos. This does make each package quicker to build, but now you have a release engineering task any time you change package A and want to see whether package B that depends on it still works. It can be clunky (actually release package A to some local repository any time you change it), or use a trick like npm link, or a whole workflow tool like Lerna.

We haven't quite solved the problem though. First, an individual application should probably stay in a single package, so that you can quickly iterate and test on it. As that application grows, it gets slower to build. Also, the inconvenience of building across package boundaries means you don't test between them as often. And finally, web developers are accustomed to instant edit-refresh workflow when their source code is directly interpreted in a browser, and we don't want to slow this down. Even a smallish package can take too long as we add tooling.

So I put forth the requirement: even as an application grows, most source edits should only take 1-2s to appear in the browser.



# Parallel Thought

The United States healthcare issue has been a main topic of discussion in the last few years. In 2010 President Obama released his healthcare reform called Patient Protection and Affordable Care Act (PPACA) aka Affordable Care Act (ACA) or also known as Obamacare. Obama's aim was to provide insurance coverage for people who didn't have access to healthcare, the uninsured and those who needed a cheaper means to have coverage. The goal was to provide quality healthcare for all American people. The United States healthcare system is a regulated health care market system that has private insurance companies and government funded health programs that range from Medicare, Medicaid, and Veterans Health Program (Cherry & Jacob, 2014). Though Obama's ideas appealed to the uninsured American people, many families still find themselves uninsured or paying extremely high premiums and deductibles.

In the United States, the available of affordable healthcare is an issue for many. In 2010, President Barak Obama aimed to lessen this costly burden by signing into law a health reform called the Patient Protection and Affordable Care Act (PPACA), otherwise known as the Affordable Care Act (ACA). The goal of this act was to provide insurance coverage for people of America who were uninsured while regulating the hastily rising costs of healthcare. By doing this, he aimed to improve the quality of healthcare for all Americans. The health care system utilized in the United States is a regulated healthcare market system which includes private insurance companies and government funded health programs such as Medicare, Medicaid, and Veterans Health Program (Cherry & Jacob, 2014). While President Obama sought to reform the health care crisis and debt, many families in the United States are still find themselves uninsured. In addition, many families who have health care coverage, find themselves uninsured, with premium and deductibles that are too costly.



# Objective Assessments

Multiple Choice,  
High Stakes

Online Proctoring  
(OLP)

Recorded  
Sessions

Secret  
Shopping



# Secret Shopping

## Behaviors

- Eye movement
- Cellphone use
- Notes

## Security Scorecard

- ID verification
- Proctor attention
- End of test procedures



# Investigations



- Review students' performance assessments
- Inspect students' OLP videos

OLP violations,  
egregious Authenticity  
violations, more than  
one warning,  
anonymous tips

# Student Support



\*On all originality concerns contact is made to the Mentor to support remediation.

## Behaviors

- New Orientation-  
Academic Authenticity  
Module
- Outreach within 24 hours  
of originality violation
  - Call, screenshare
- The Student Conduct  
Office contacts the  
student if there is an

# Web Patrol

DMCAs for  
WGU  
copyrighted  
material

Search  
online for  
posts,  
purchases,  
and/or  
solicitations

Reverse  
Plagiarism  
reports for  
purchased  
papers

# Web Patrol Sites

Facebook  
Groups

Twitter  
Posts,  
Reddit

Track  
Over 600  
Sites



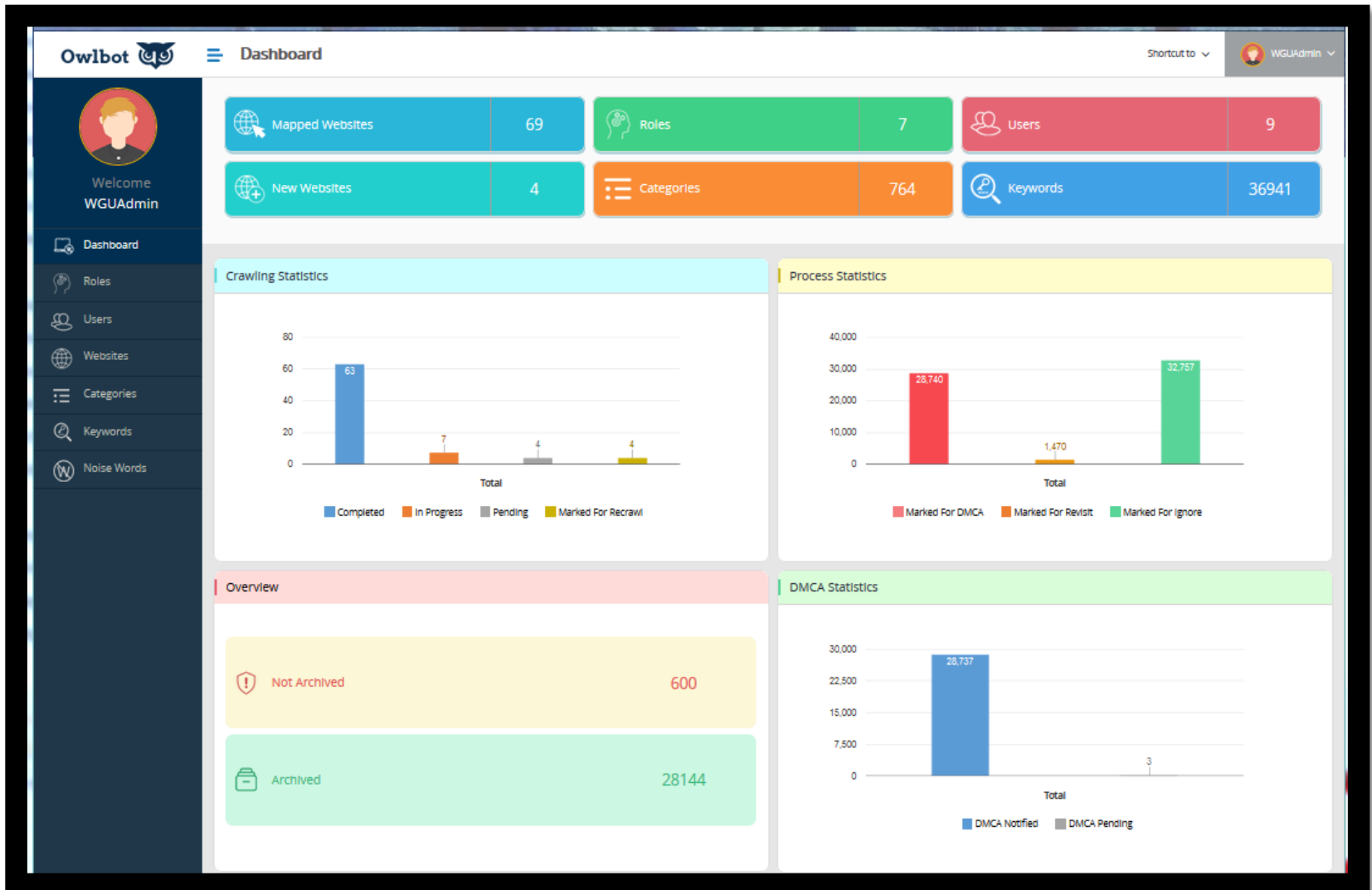
# Owlbot, the WGU WebCrawler

Web Patrol  
searching  
for  
assessment  
items and  
responses

Collaborated  
to develop a  
webcrawler

WGU  
Owlbot  
improved  
efficiency in  
searching

# WGU WEBCRAWLER



**Keyword Text:**

"No more than a combined total of 30% of a submission can be directly quoted or closely paraphrased"

**Select Website:**

Marked for DMCA (50)  For Revisit (3)  Ignore This (2)

**Weblinks** **Mar**

[https://www.homeworkmarket.com/sites/default/files/qx/15/04/08/04/cyberlaw\\_...](https://www.homeworkmarket.com/sites/default/files/qx/15/04/08/04/cyberlaw_...)  M  
 F  
 I

<https://www.homeworkmarket.com/content/community-nurssing>  M  
 F  
 I

```
");}); //--> window.fbAsyncInit = function() { FB.Init({ appid : '237061906357062', // App ID channelId : '//www.homeworkmarket.com/channel.html', // Channel File status : true, // check login status cookie...:VVwww.homeworkmarket.com/vfb_social/vchannel' }); }; (function() { var e = document.createElement('script'); e.async = true; e.src = document.location.protocol + '//connect.facebook.net/en_US/all.js
```

<https://www.homeworkmarket.com/node/7895621>  M  
 F  
 I

```
");;$("#awesome-message").fadeIn("slow");}); //--> window.fbAsyncInit = function() { FB.Init({ appid : '237061906357062', // App ID channelId : '//www.homeworkmarket.com/channel.html', // Channel File status... up to the paid amount window.fbAsyncInit = function() { FB.Init({ appid: "237061906357062", status: true, cookie: true, xfbml: true, channelId: "https://www.homeworkmarket.com/vfb_social/vchannel
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<https://www.homeworkmarket.com/node/10865641>  M  
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");}); //--> window.fbAsyncInit = function() { FB.Init({ appid : '237061906357062', // App ID channelId : '//www.homeworkmarket.com/channel.html', // Channel File status : true, // check login status cookie : true... on our site up to the paid amount window.fbAsyncInit = function() { FB.Init({ appid: "237061906357062", status: true, cookie: true, xfbml: true, channelId: "https://www.homeworkmarket.com/vfb_social/vchannel
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<https://www.homeworkmarket.com/node/10865707>  M  
 F  
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```
("slow");}); //--> window.fbAsyncInit = function() { FB.Init({ appid : '237061906357062', // App ID channelId : '//www.homeworkmarket.com/channel.html', // Channel File status : true, // check login...: "237061906357062", status: true, cookie: true, xfbml: true, channelId: "https://www.homeworkmarket.com/vfb_social/vchannel' }); }; (function() { var e = document.createElement('script'); e.async = true; e.src
```

<https://www.homeworkmarket.com/node/6448897>  M

# The Web Patrol Team numbers from September 1, 2017 to August 31, 2018

Approximately, how many DMCAAs  
have been completed?

a. 150

b. 200

c. 300

d. Over 400

The Web Patrol Team numbers from  
September 1, 2017 to August 31,  
2018

Approximately, how many URLs were  
taken down from the 436 DMCAAs?

a. 436

c. 1,352

b. 932

d. 14,763

Since 2009, how many online proctored assessments have been completed by WGU students?

- a. Around 1,250,000
- b. Around 1,500,000
- c. Around 1,750,000
- d. Over 2,000,000



What type of institution is the  
highest  
OLP user in the world?

a. A business

b. A school

It's WGU!

# Discovery Challenges in New Media

- Keywords searches are becoming less effective due to social media growth and adoption
- Privacy of website/owner information growing exponentially further hampering takedown efforts
- Typical search methodologies only uncover a small percentage of potential infringed content
- Where are they sharing content

# Online Protection Strategies



**ONLINE UNIVERSITIES**  
THREAT MITIGATION STRATEGIES

**01** DONT RELY ON KEYWORD SEARCHES

STEP | THERE ARE OVER TWO BILLION SOCIAL MEDIA USERS (AND GROWING) THAT ARE NOT WELL REPRESENTED IN KEYWORD SEARCHES. THEREFORE, RELYING ON PRIOR SUCCESSFUL INFRINGEMENT DETECTION METHODS MAY LEAVE A LARGE NUMBER OF THREATS UNDISCOVERED, ESPECIALLY IN PROGRAMS WITH A LARGE NUMBER OF CANDIDATES AND EXAM TYPES SUCH AS ONLINE UNIVERSITIES



**ONLINE UNIVERSITIES**  
THREAT MITIGATION STRATEGIES

**02** USE MULTIPLE SEARCH METHODOLOGIES

**STEP** SEARCHES ENGINES SUCH AS GOOGLE HAVE ONLY INDEXED  
ROUGHLY 5-10 PERCENT OF THE INTERNET AND ARE NOT WELL  
UTILIZED TO SEARCH SOCIAL MEDIA. SEARCH ENGINE INDEXING  
MOVES AT A MUCH SLOWER PACE THAN SOCIAL MEDIA

**ONLINE UNIVERSITIES**  
THREAT MITIGATION STRATEGIES

02  
STEP

04  
STEP

06  
STEP

**03** TRACK REMOVALS

STEP

CONDUCT QUARTERLY REVISITS TO REMOVED THREATS TO ENSURE THEY HAVE NOT REAPPEARED OR MORPHED INTO DIFFERENT FORMS



**ONLINE UNIVERSITIES**  
THREAT MITIGATION STRATEGIES

**04** | **ENGAGE YOUR CANDIDATES AS SECURITY SUPPORT**

**STEP** | CREATE WAYS TO ENGAGE AND REWARD YOUR EXAM CANDIDATES AND STUDENTS FOR HELPING TO PROMOTE AND PROTECT THE SECURITY OF YOUR PROGRAM AND EXAMS

**ONLINE UNIVERSITIES**  
THREAT MITIGATION STRATEGIES

**05** EMPLOY THE LATEST CUTTING EDGE TOOLS

STEP

AS IT'S REASONABLY POSSIBLE WITHIN YOUR ORGANIZATION  
REPLACE CURRENT PROCESSES AND TOOLS WITH NEW ONES  
THAT BETTER ADDRESS THE FAST MOVING AND HIGHLY  
TECHNICAL ONLINE LANDSCAPE

**ONLINE UNIVERSITIES**  
THREAT MITIGATION STRATEGIES

**06** **USE ONLINE DATA TO PREDICT TRENDS/LIFESPAN**

STEP

THERE IS SOON COMING A POINT THAT EMPLOYING RESOURCES TO JUST REMOVE THREATS ONLINE WILL BECOME AN UNSUSTAINABLE METHOD. A FUTURE PLAN WILL BE TO USE THE EXPOSURE DATA FOUND ONLINE TO PREDICT TRENDS, IDENTIFY PRIME EXPOSURE LOCATIONS AND FOCUS ON DETERMINING LENGTH OF LIFE OF EXAMS PRIOR TO EXPOSURE

## ONLINE UNIVERSITIES THREAT MITIGATION STRATEGIES

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STEP

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