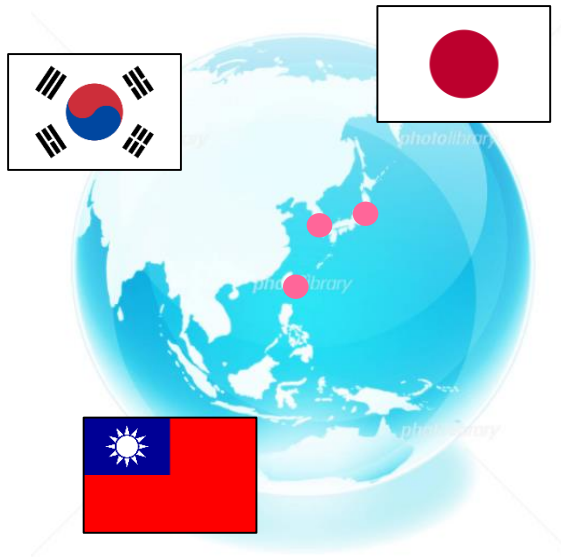
Women in Security

Building a Female InfoSec Community in Korea, Japan, and Taiwan

South

Suhee Kang, Asuka Nakajima, Hazel Yen

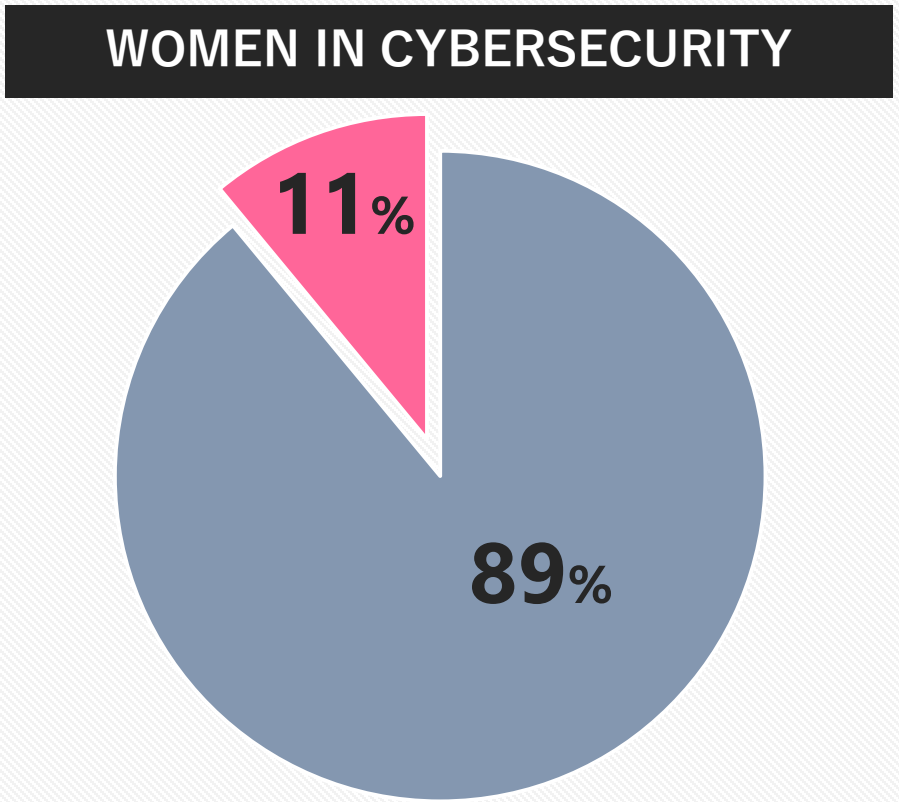


Background [1/2]

Information Security Industry Has Historically Been a Male-Dominated Field

2017

Women represent only 11% of the information security workforce[1]



[1] The 2017 Global Information Security Workforce Study: Women in Cybersecurity, A Frost & Sullivan Whitepaper
https://isc2-center.my.salesforce.com/sfc/p/#G0000000iVSt/a/0f000000bpWC/zrswNsFs1GxS3Bqfb1obFxb5NgZeDkSHeiOJVOd8afQ

Background [2/2]

More Women are Expected to Join the Information Security Industry..

However....

- Stereo Type Bias
- Social Pressure
- etc

Difficult to increase their number

To Bridge This Gap

Female Community

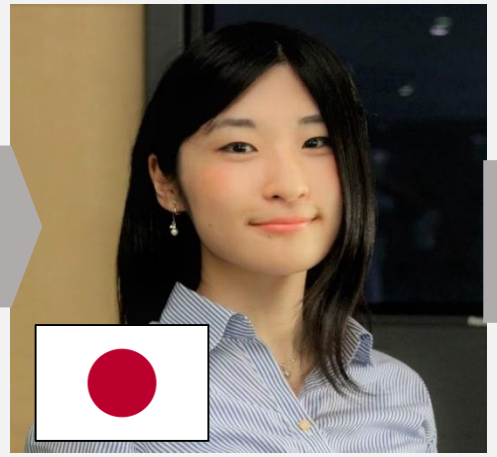
- ☑ Support & Motivate Women
- ☑ Produce More Role Models

About Today's Talk

Introduce Three Representative Asian Female Communities
Power of XX (Korea), CTF for GIRLS (Japan), HITCON GIRLS (Taiwan)

South

Founder of Power of XX	Founder of CTF for GIRLS	Co-Founder of HITCON GIRLS
Est. 2011	Est. 2014.06	Est. 2014.12



Suhee Kang ***Asuka Nakajima*** ***Hazel Yen***

What we will talk

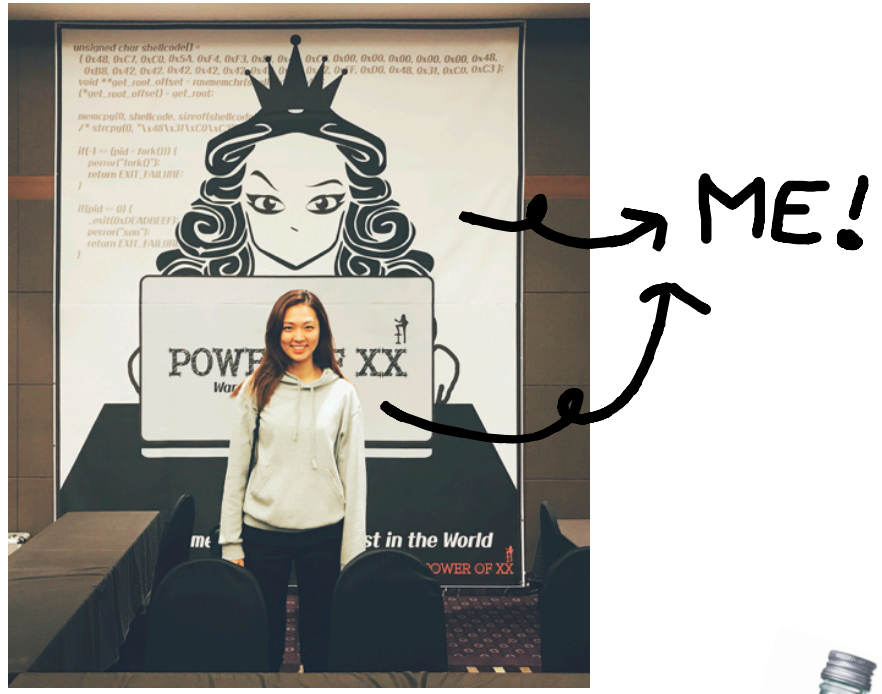
- ☑ How We Build & Maintain the Community
- ☑ What We Have Achieved
- ☑ How We Tackled Various Challenges

South Korea: Power of XX

Suhee Kang (Security Researcher, POCSEC)

About Me

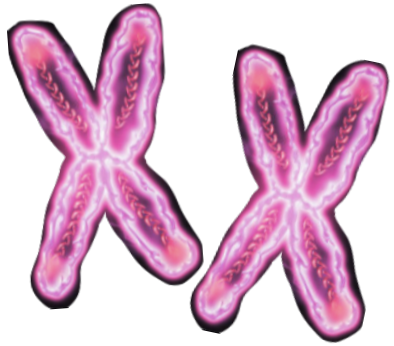
- Name: **Suhee Kang**
- Company: **POC Security**, researcher
  - ✓ **POC**: http://powerofcommunity.net
  - ✓ **Zer0Con**: http://zer0con.org
  - ✓ **MOSEC** (in Shanghai): http://mosec.org



- Jogger
- Dog lover ☺
- Soju holic ☺
- …

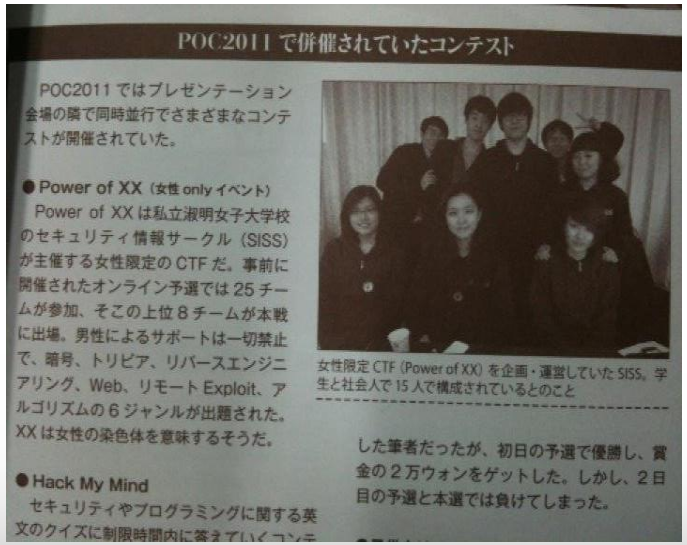
What is Power of XX?

- Here 'XX' means chromosome of women
- First batter of women-only CTF
- CTF >>> Community



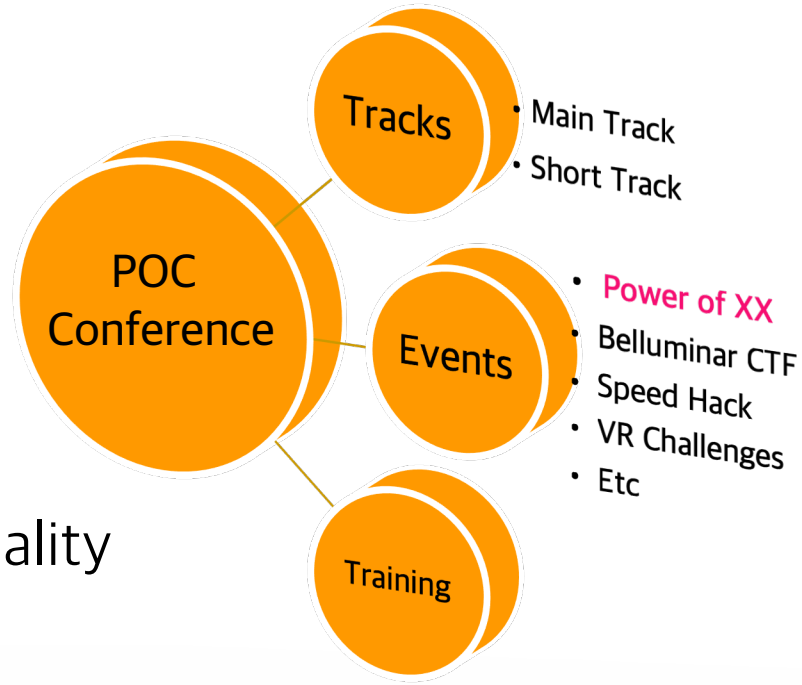
Introduction of PoXX [1/3]

- Beginning
  - ✓ Established in 2011
  - ✓ Cyber Security Club, SISS(Sookmyung women's Univ.)



Introduction of PoXX [2/3]

- Operation
  - ✓ Jeopardy style CTF
  - ✓ Qualification & Final



  - ✓ **80 teams** in average
  - ✓ No limitation in number of members, nationality
  - ✓ Only 6~8 teams go to Final

Introduction of PoXX [3/3]

- Operation
  - ✓ Various teams from various groups
  - ✓ Aged from 10s to 30s
  - ✓ Award is given to 1st to 3rd
  - ✓ Until 2016, SISS & Hacker School
  - ✓ 2017~now, SISS & Demon team

In 2012,
Computer World
Interview

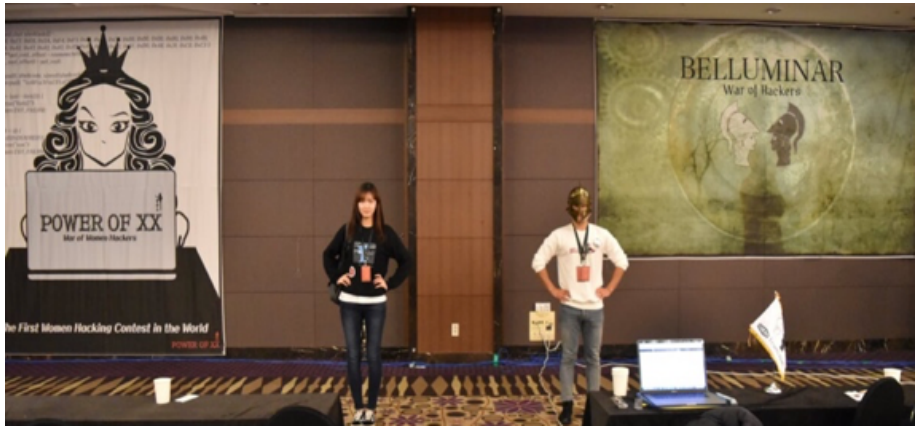
SISS & Hacker
School

In 2017,
SISS & Demon
team

Objects [1/3]

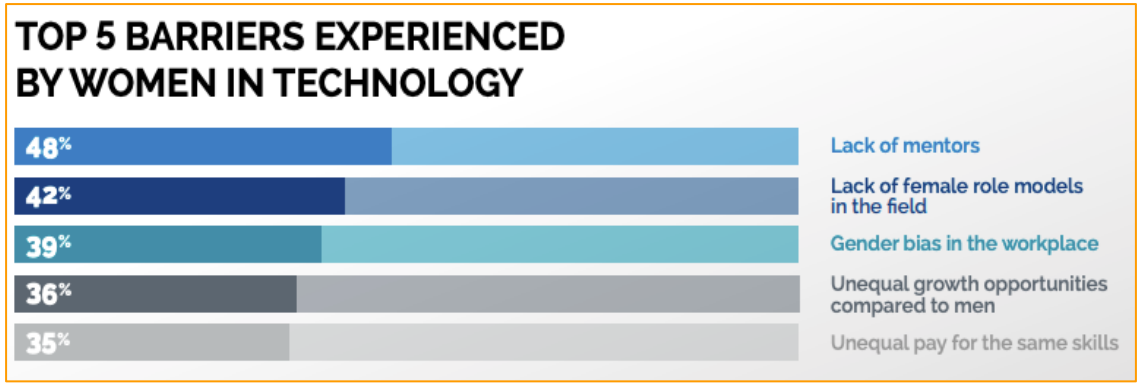
- Why we run this?

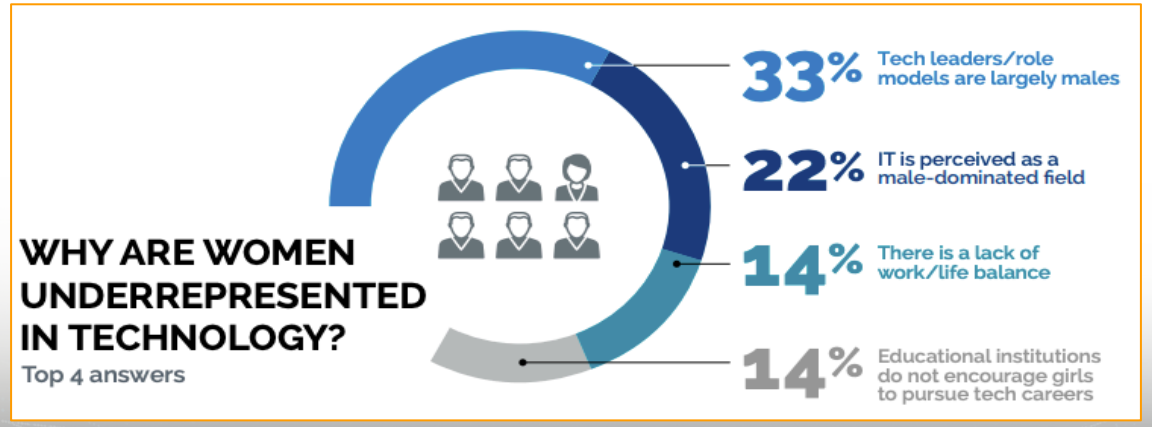
- Barriers
  - ✓ Underrepresented in this area
  - ✓ Lack of Community
  - ✓ Lack of female role models
  - ✓ Difficulties in learning
  - ✓ Male-dominated field



Objects [2/3]

- Research of ISACA in 2017:



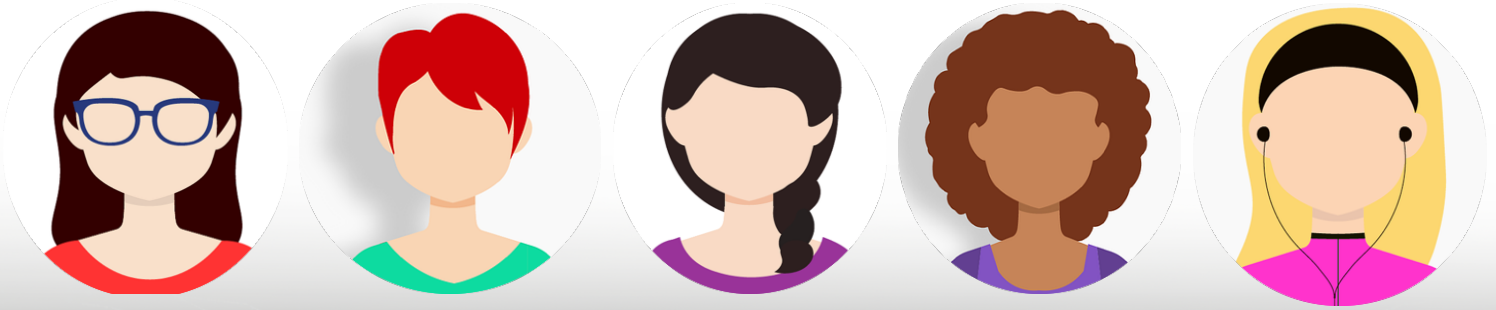


http://www.isaca.org/SiteCollectionDocuments/2017-Women-in-Technology-Graphic.pdf

Objects [3/3]

- So, Why we run this?
  - ✓ To **cultivate** women InfoSec researchers & hackers
  - ✓ To **retain** women who already in this field

  - ✓ Why we **started with CTF**?



Overcome [1/4]

- Interesting concept Challenges
  - ✓ Programing, System, Web, Network, Forensic, Crypto, Misc, …
  - ✓ **Combine with** Maze System, Treasure Hunt, Games, …
  - ✓ **Combine with** Recent Issues
  - ✓ From **Basic** to **Advanced**

2011 - Shooting game challenge

Overcome [2/4]

- Larger pool of women researchers & Build Networks

1 **2011 – 2014**
Invitation to 'PHDays CTF' in Russia

2 **2014**
Invited 'CTF 4 Girls' in Japan to final

3 **2015**
Invited well known hacker as mentor

6 **Every Year**
Invited whole teams to Networking Parties

5 **Every Year**
Provide souvenirs to PR

4 **2017**
Invited 'HITCON Girls' in Taiwan to final

Overcome [3/4]

- Larger pool of women researchers & Build Networks

2011

2012

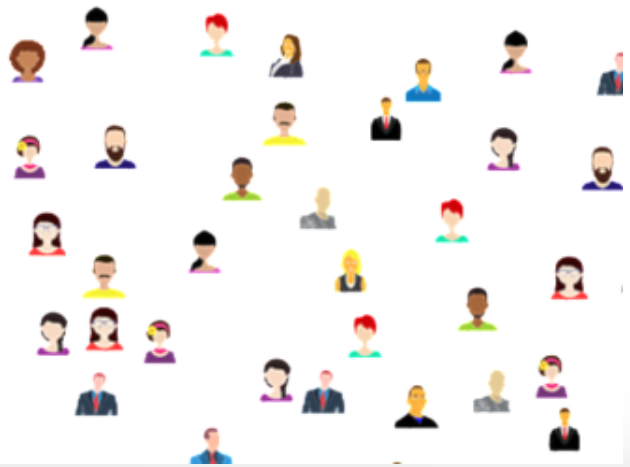
2011 Russia

2015 Mentor

2017

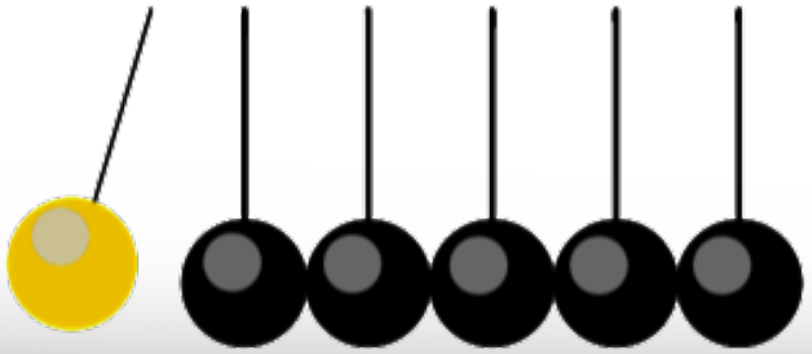
Overcome [4/4]

- Recruit them to hacker teams
  - ✓ Provide various opportunities

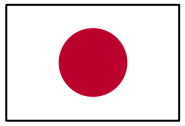


Impacts

- **More** women hackers and researchers
  - ✓ about 30 people => 80 teams!
  - ✓ Not only Domestic teams
  - ✓ Abroad teams in USA, Japan, Taiwan, …
- Winner of 2018 **won 1st place** at other CTF
- More **sustainable, stable** community



Future Plans [1/2]



?

- Korea => Japan => Taiwan => Who's next ?

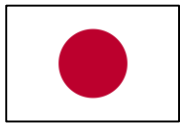
Future Plans [2/2]

- In near future,
  - ✓ TR program for **whole age** women in Korea
  - ✓ Organizing PoXX **with various teams** from…
  - ✓ Hold **international competition** with…
  - ✓ **Co-operating** with Belluminar (www.belluminar.org)

- **Facebook**: @sm.siss, @POC_Conference
- **Twitter**: @POC_Crew
- **Email**: powerofxx@gmail.com
  : suhee@pocsec.com

- We are moving website now ☺

Thanks!



Japan: CTF for GIRLS

Asuka Nakajima (Security Researcher, NTT)

CTF for GIRLS

First Female InfoSec Community in Japan

Overview

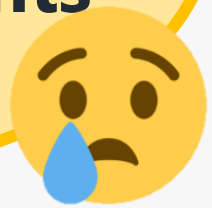
- ✓ **Established in 2014**
- ✓ **Supported by SECCON**
  - Largest CTF in Japan
  - More than **30** Japanese companies sponsor SECCON (e.g., NEC, Fujitsu)
- ✓ **Started from about 10 members**
  - Members are all female engineers & students
  - Number of members is currently about **30**

Why?

My Personal Experience & Opinions from My Female Friends

I don't know where to start..

Difficult to fit into a workshop (community).. Most of the participants are men....



Maybe infosec is not for women..

First Step to Break this Barrier ➡ Make a Female Community

Activities of CTF for GIRLS

1. Women-Only CTF Workshop

2. Women-Only CTF

About CTF Workshop (+Timeline)

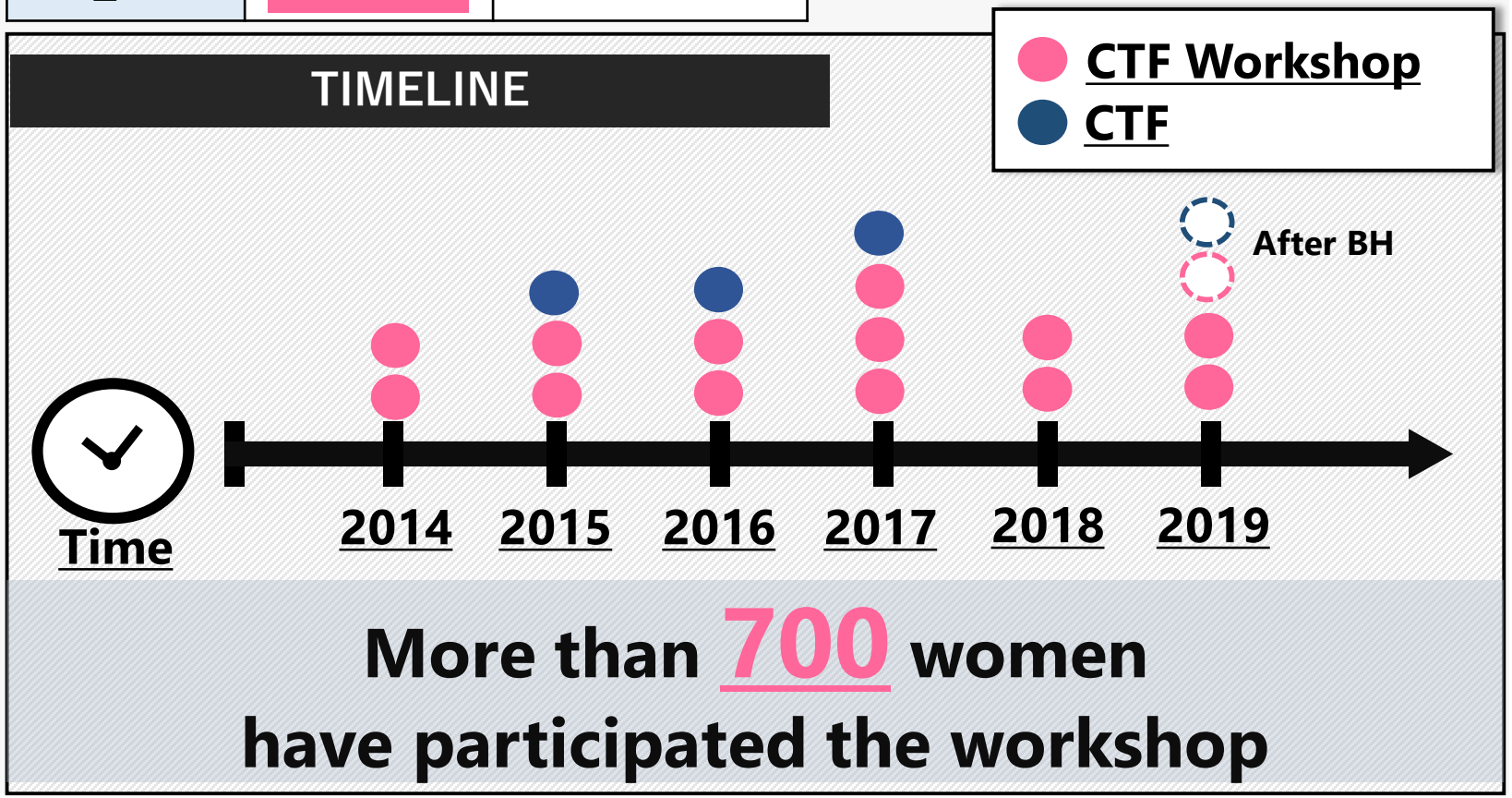
WS	Year/M	Category
1st	2014.06	Network Web Binary Forensics Crypto Trivia
2nd	2014.10	Network
3rd	2015.04	Binary
4th	2015.12	Web
5th	2016.06	Forensics
6th	2016.12	Crypto
7th	2017.06	Network
8th	2017.12	Forensics
9th	2018.06	Web
10th	2019.02	Crypto
11th	2019.06	Forensics

Students Only WS	Year/M	Category
1st	2017.08	Web/Crypto
2nd	2018.08	Network

2-3 times / year

Total 13 times

TIMELINE



More than 700 women have participated the workshop

Contents of CTF Workshop

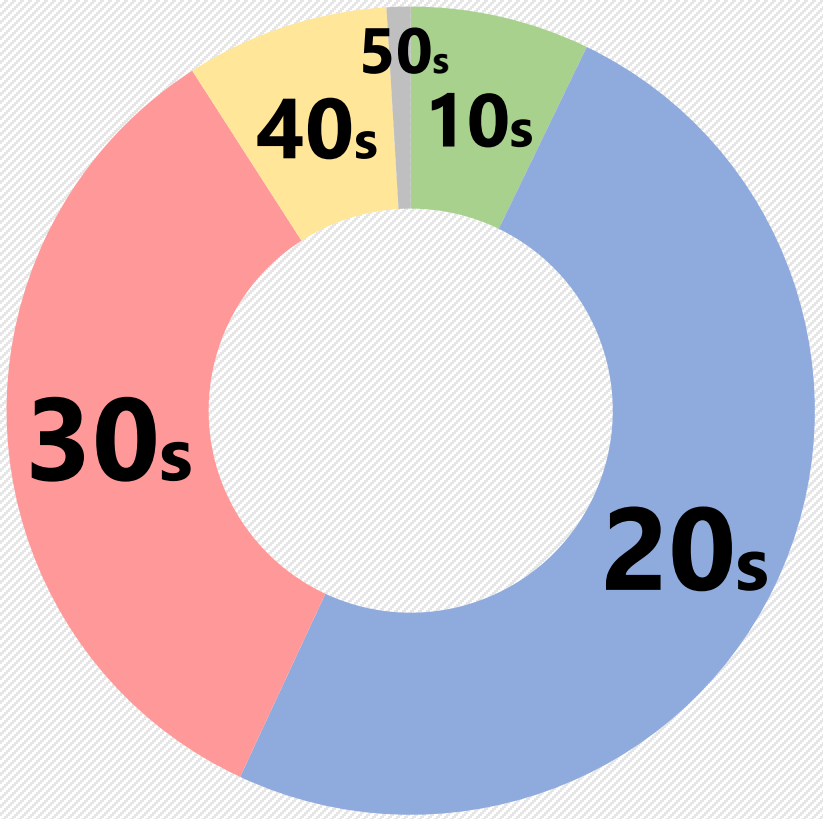
Teach From the Basics of Computer Science

Category	Details
Network	TCP/IP Basics, Packet Structure, How to use Wireshark
Web	Web Security Basics, SQL injection, How to use Burp Suite
Binary Analysis	Hexadecimal, Assembly, Windows API, How to use Debugger
Forensics	Disk Analysis, Windows Registry, How to use FTK Imager
Crypto	Password Crack, Known Plain Text Attack, Common/Public Key

40 min Lecture + 50 min Exercise (mini CTF)

CTF Workshop (Statistics)

Age Group of Participants



Overview

✓ **Most of the participants are in their 20s or 30s**

- Students are still few

CTF Workshop (TIPS)

TIPS

- ✓ **Provide a VM which all the related tools are already installed**
  - Provide a manual to install the VM
- ✓ **Answer the questions from the participants as soon as possible**
- ✓ **Provide CTF challenges from basic to advanced level**
  - Make sure that everyone can enjoy the workshop
- ✓ **(Regulate Media & Photos)**
  - Some participants don't want to be posted on the Internet (Social Media)

Women-only CTF (GHOST IN THE SHELL CTF)

2015-2017

Winner (2017)

	Year	Domestic or International? [Place]
1st	2015	Domestic Kobe
2nd	2016	Domestic Tokyo
3rd	2017	International (in CODE BLUE) Tokyo

CODE BLUE

Overview

攻殻機動隊

✓ **What is "Ghost in the Shell"?**

- Famous Japanese science fiction comic which is originally written by Shirow Masamune, and was made into movie by Hollywood in 2017

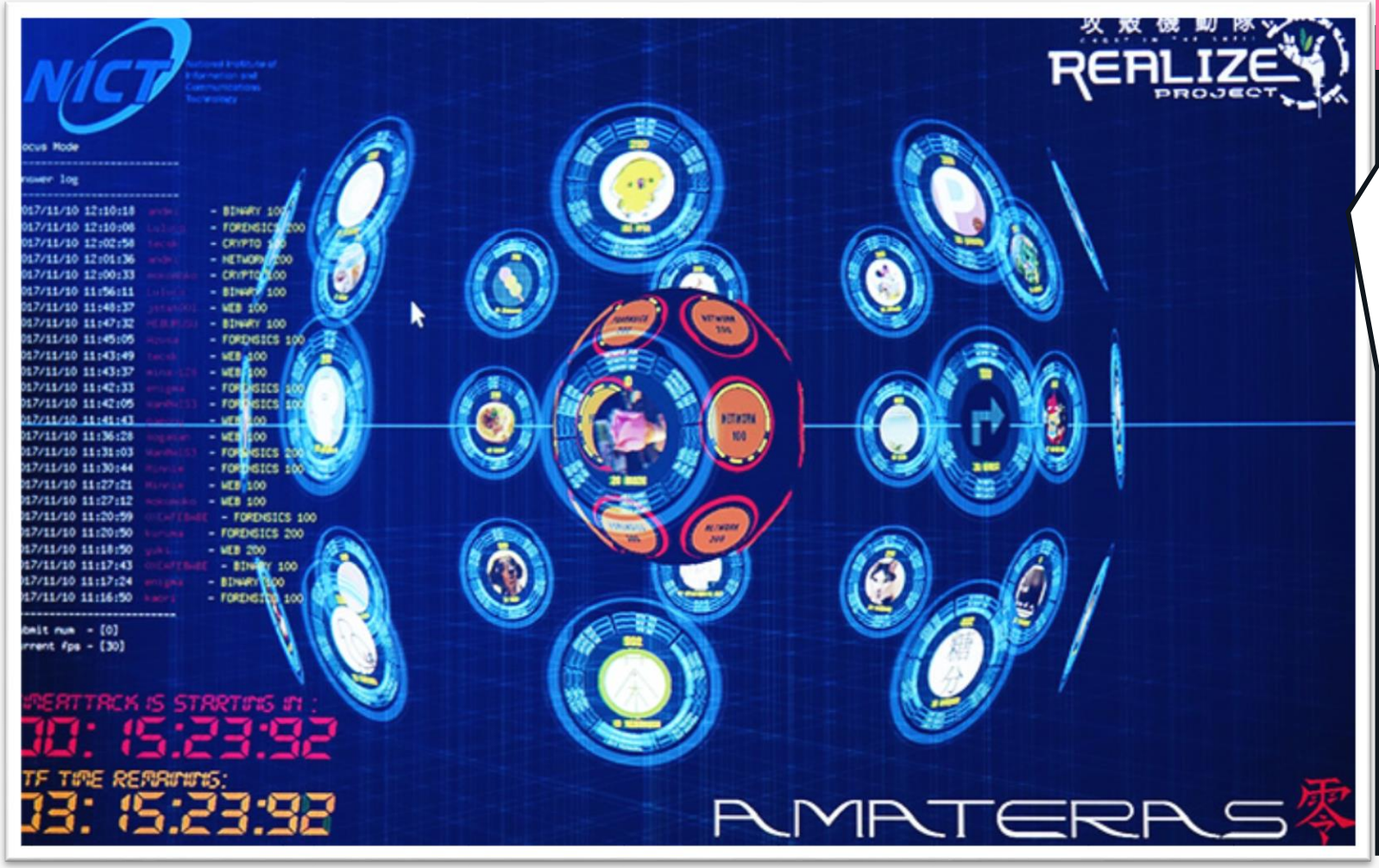
✓ **Goal**

- Produce highly skilled female security engineer, such as Motoko Kusanagi, the heroine of "GHOST IN THE SHELL" which is called as "ultra-wizard hacker"

✓ **Jeopardy-style CTF (Individual CTF)**

- 20~30 Participants / 1-Day Competition
- Winner of 2017 is security researcher from PPP

CTF Visualization System



AMATERAS 零

- ✓ **Advanced Multi-Actor Tactical Exercise Real-time Analysis System: Prototype Version 0**
- ✓ **Developed by NICT**

National Institute of Information and Communications Technology

CTF Visualization System

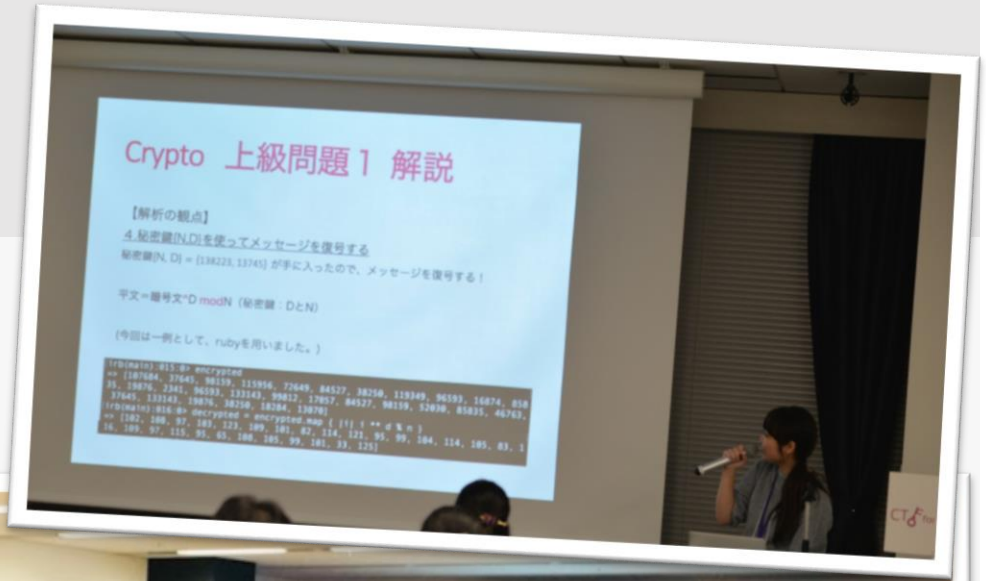
AMATERAS 零

✓ **Advanced Multi-Actor Tactical Exercise Real-time Analysis System: Prototype Version 0**

✓ **Developed by NICT**

National Institute of Information and Communications Technology

Photos


Crypto 上級問題１ 解説
【解析の観点】
4.秘密鍵(N, D)を使ってメッセージを復号する
秘密鍵(N, D) = (138223, 13745) が手に入ったので、メッセージを復号する！
平文＝暗号文^D mod N（秘密鍵：DとN）
(今回は一例として、rubyを用いました。)

CTF for GIRLS

Networking Female [1/2]

Visualize the Community to Gain Recognition

Official Website

http://girls.seccon.jp

Sticker

How Did We Visualize?

- ✓ **Created an official website & SNS accounts**
  - Reported the activities regularly

@ctf4g

- ✓ **Created a logo, sticker, and T-shirts**
- ✓ **Invited a media and took the interview**
  - News paper, Magazine, and Web Media
- ✓ **Collaborated with famous events/contents**
  - CODEBLUE, Ghost in the shell

CODE BLUE

Networking Female [2/2]

Actively Facilitate Networking

Donut

Macaron

How Did We Facilitate Networking?

- ✓ **Provided cute snack during the break**
  - Donut, Macaron, Cupcake, Pudding..etc.
- ✓ **Held an after-party**
  - About **10~40%** of participants also participates the after-party

Building Sustainable Community [1/2]

Actively Recruit New Members

How Did We Recruit New Members?

Early Stage

Asked existing local community members (SECCON) whether they know a woman who is interested in CTF for GIRLS activities

Now

Recruit a new member from the workshop participants

Building Sustainable Community [2/2]

Create an Organization that Does not Rely on a Single Person

Groupware + Wiki

What We Focused on

- ✓ **Created a manual**
  - How to create CTF challenges
  - How to hold workshop
- ✓ **Hand over power to young members**

Even the Leader (Asuka) can be replaced

Acknowledgment

CTF for GIRLS Members

Name	Name (JP)	Affiliation
Haruka Nakashima	中島 春香	-
Haruka Suzuki	鈴木 悠	LAC
Momoko Aoyama	青山 桃子	Hitachi Solutions
Akiko Sueyoshi	末吉 亜希子	NTT Data
Sayo Ichinose	一瀬 小夜	-
Chiho Mihara	三原 千穂	Toshiba
Mari Aoba	青羽 真利	LAC
Ayako Kozakai	小境 彩子	NTT Data Intellilink
Yu Yanagi	柳 優	IBM Japan
Hitomi Kimura	木村 仁美	TrendMicro

Name	Name (JP)	Affiliation
Tomomi Oogushi	大串 智美	NTT Data
Nao Takaoka	高岡 奈央	-
Erika Kikuchi	菊池 絵里加	Information Science College
Y.Ozawa	-	-
M.Takahashi	-	-
+ more than 15 members		

SECCON Sponsors & Special Thanks to NICT

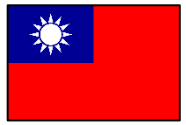
SECCON Members / etc

Tomohiro Hanada	花田 智洋	-
Yoshinori Takesako	竹迫 良範	-
Y.Hayashi	-	-
JNSA (Japan Network Security Association)		
+ more than 35 members		

For more information

Website http://girls.seccon.jp Twitter @ctf4g E-mail ctf4girls@seccon.jp

Facebook https://www.facebook.com/CTF-for-GIRLS-983496775036075/



Taiwan: HITCON GIRLS

Hazel Yen (Security Engineer, DEVCORE)

2014.10 → 2014.12 → Study Group

THE BEGINNING OF HITCON GIRLS

HITCON GIRLS Purposes

We believe everyone can learn InfoSec.

For what?

- As a career
- As a hobby

How?

- Sharing Knowledge:
  Publish Our knowledge to community
- Broadcast a message:
  Doing security is an option for girls

Team up girls who are interested in InfoSec, learning and growing together.

We split into two groups: Administrative Group, Study Group

About HITCON GIRLS

Administrative Group

Study Group

Web PT	Android PT
CTF	Malware Analysis
DFIR	Network Security
Free Research	

About HITCON GIRLS

Administrative Group

- Social Media
  - FB Fan Page
  - Blog
  - Twitter
  - YouTube
  - ⋮
- Events&Activities
- Study Group
- Meeting
- Leader Election

Study Group

Events We Held

The Events

- The beginning: Workshop
- Hacks in Taiwan Conference Community
- HG at HITB
- CTF for HG 4th Audition

Knowledge Sharing

- InfoSec Budding Promotion: Teenager Summer Camp
- Studying group annual presentation
- GoToConference Project

Sharing Invitation

- The first anniversary&PPP interview
- Chipchat Party
- Birds of a Feather
- InfoSec Women's Sharing

Events We Held

2014
The beginning: Workshop

- It was the beginning of HITCON GIRLS.
- All the attendees were female, including students and employees, who were learning about InfoSec for the first time.

Events We Held: Knowledge Sharing

2015
Study group annual presentation

- It was a presentation about the research from our Study Group.
- We introduced how we learned and how much we have grown in the Study Group this year.

Events We Held: Sharing Invitation

2015
The first anniversary&PPP interview

- It was the first time we had new girls join us.
- Fortunately, we invited Tyler and Erye from PPP to share with us.
- The topic was "How interesting InfoSec is".

Events We Held: Sharing Invitation

2016
Chipchat Party

- We invited Katie Moussouris, Kana Shinoda and Eva Chen to give a chat in the party!

- What we confirmed from them is that "It is possible for women to be outstanding in the Cybersecurity field".

Events We Held: Knowledge Sharing

2017
InfoSec Budding Promotion

- We introduced information security for teenagers.
- The topics included web security, binary analysis, cryptography and CTF introduction.

Events We Held: Sharing Invitation

2017
Birds of a Feather

- We invited the BoB member Dasom Kim, Trend Micro researchers Fyodor and Aaron!
- As a result, we realized how special and unique the work of InfoSec is.

Events We Held

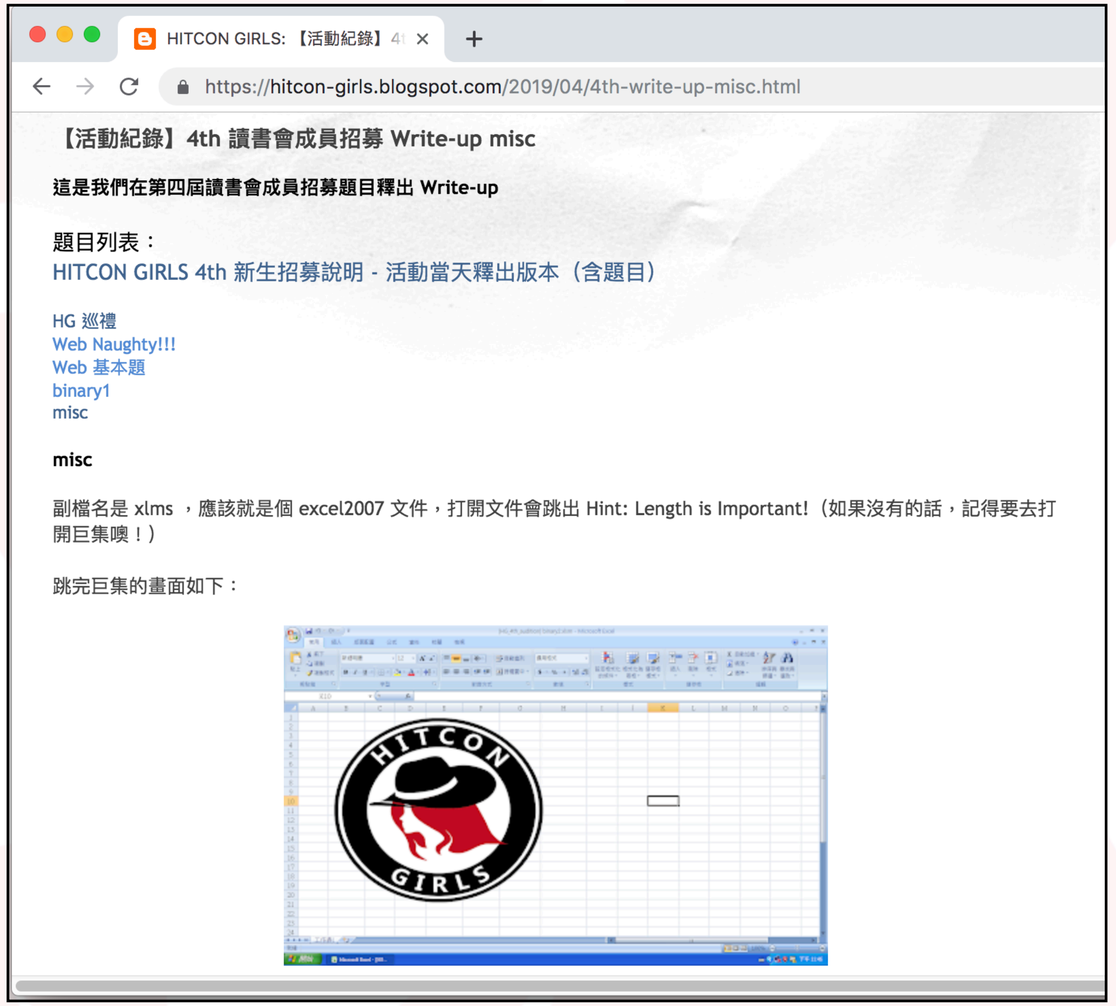
2018
HITCON Community

- Hacks in Taiwan Conference(HITCON) is the most technical information security conference in Taiwan.
- The coordinators were all in HITCON GIRLS.
- Over 1000 attendees.

Events We Held

2019
CTF for HG 4th Audition

- As far as we know, it was the first CTF led by female in Taiwan.
- We hosted a CTF for the audition and designed the tasks by ourselves.



Events We Held

2019
HG at HITB

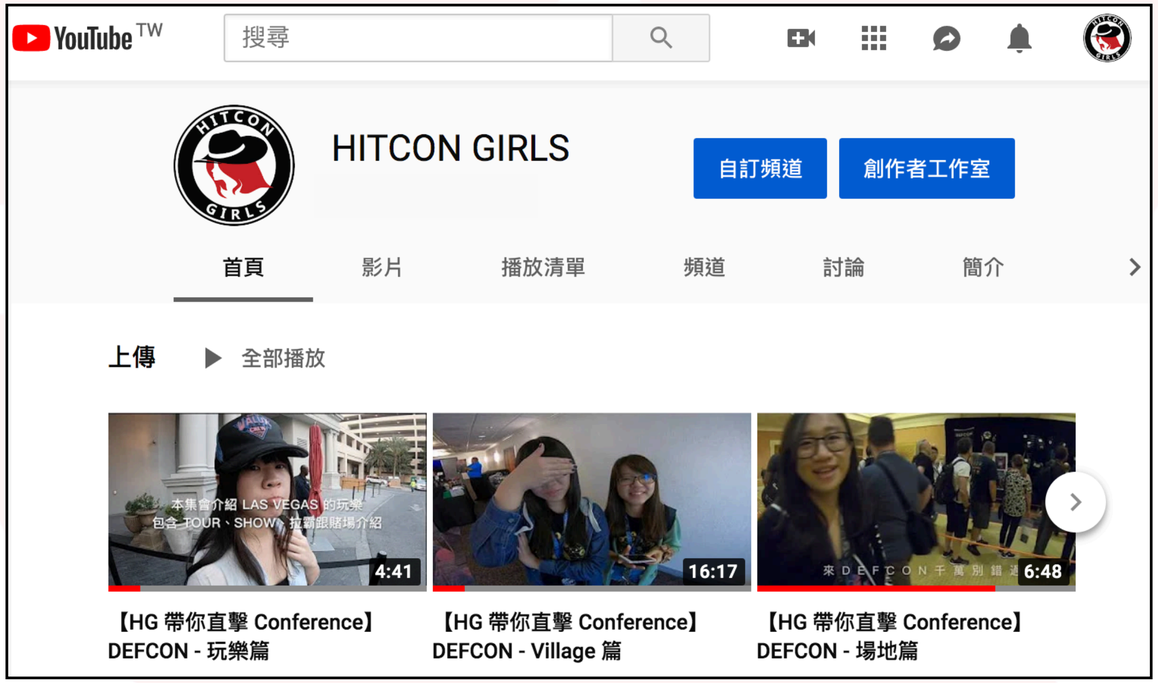
- Thanks to the invitation from HITB, HITCON GIRLS went to Europe!
- It was our first time to host an activity overseas. We had the HG CAT Wargame and Smart Contract Challenge at the future HAXPO.

Events We Held: Knowledge Sharing

2019
GoToConference Project

- We went to DEFCON and recorded this tour, which included a journey from Taiwan to Las Vegas.

- In our videos, we introduced the InfoSec security conference and talked about their special activities.



Events We Held: Sharing Invitation

2019
InfoSec Women's Sharing

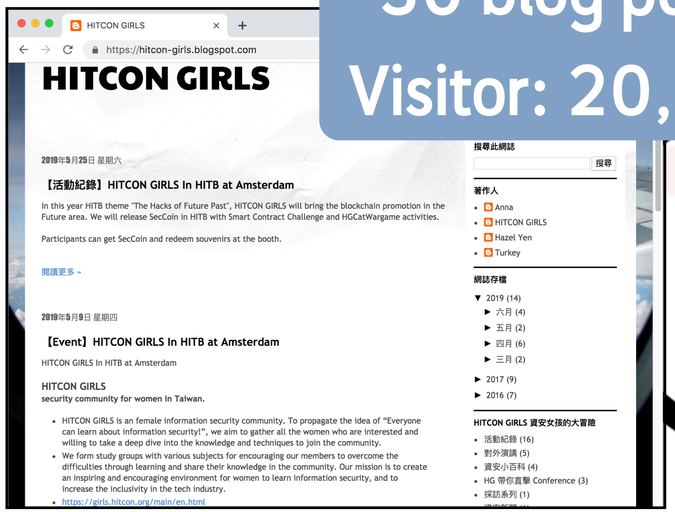
- We invited Anna Chung, researcher from a threat intelligence company in America, to share her experience in the Cyber security field.

- Her message: "Break stereotypes and work hard to be better".

Our Accomplishments

We believe everyone can learn InfoSec.

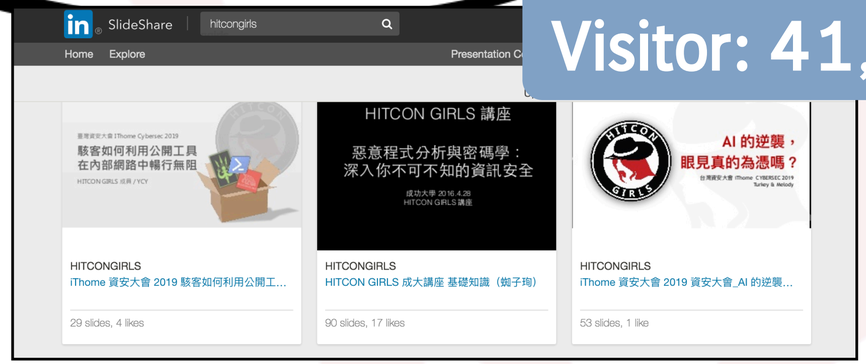
30 blog posts
Visitor: 20,193



Sharing Knowledge

4 videos
Visitor: 8,950

22 slides
Visitor: 41,844



Our Accomplishments

Team up girls who are interested in InfoSec, learning and growing together.

Speeches

at

- National Cheng Kung University
- National Chung-Shan Institute of Science and Technology
- National Taipei University of Technology
- Yuan Ze University
- CYBERSEC
- Information Associate of Students
- The workshop of thenewslens
- WhiteHatFest

Own our CTF

Takeaways

Takeaways

- ☑ **History and current status/activities of three Asian representative female InfoSec communities in South Korea, Japan, and Taiwan**

- ☑ **How we build and maintain our communities and how we tackle the various challenges such as having a sustainable community**

- ☑ **Comparison of three the communities reveals some of the crucial factors in starting and continuing a female community**
  - ✓ **Each community started by a few tech-savvy women**
  - ✓ **Support from existing local community: POC, SECCON, and HITCON**
  - ✓ **All the community members are connected by their interests in technology (e.g., CTF)**

Questions?