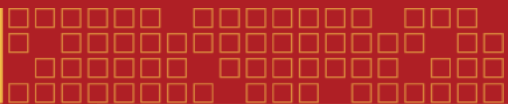# Artificial Intelligence at Iowa State University

Information Technology Services

Topics

- Context of AI at ISU
  - (Cyndi Wiley)
- Committee Objectives and Deliverables
  - (Kristen Constant)
- Use cases and resources
  - (Mike Lohrbach)

AI is not new

Began with the advent of computers

IOWA STATE UNIVERSITY
Information Technology Services

AI is already embedded into our lives

Healthcare: assisting in diagnosis, medical research

Finance: detecting fraud, managing investments, enhancing customer service

Transportation: optimizing routes, improving traffic flow, developing self-driving vehicles

Retail: personalizing shopping experiences, managing inventory, improving supply chain efficiency

Manufacturing: optimizing production processes, improving quality control, reducing downtime
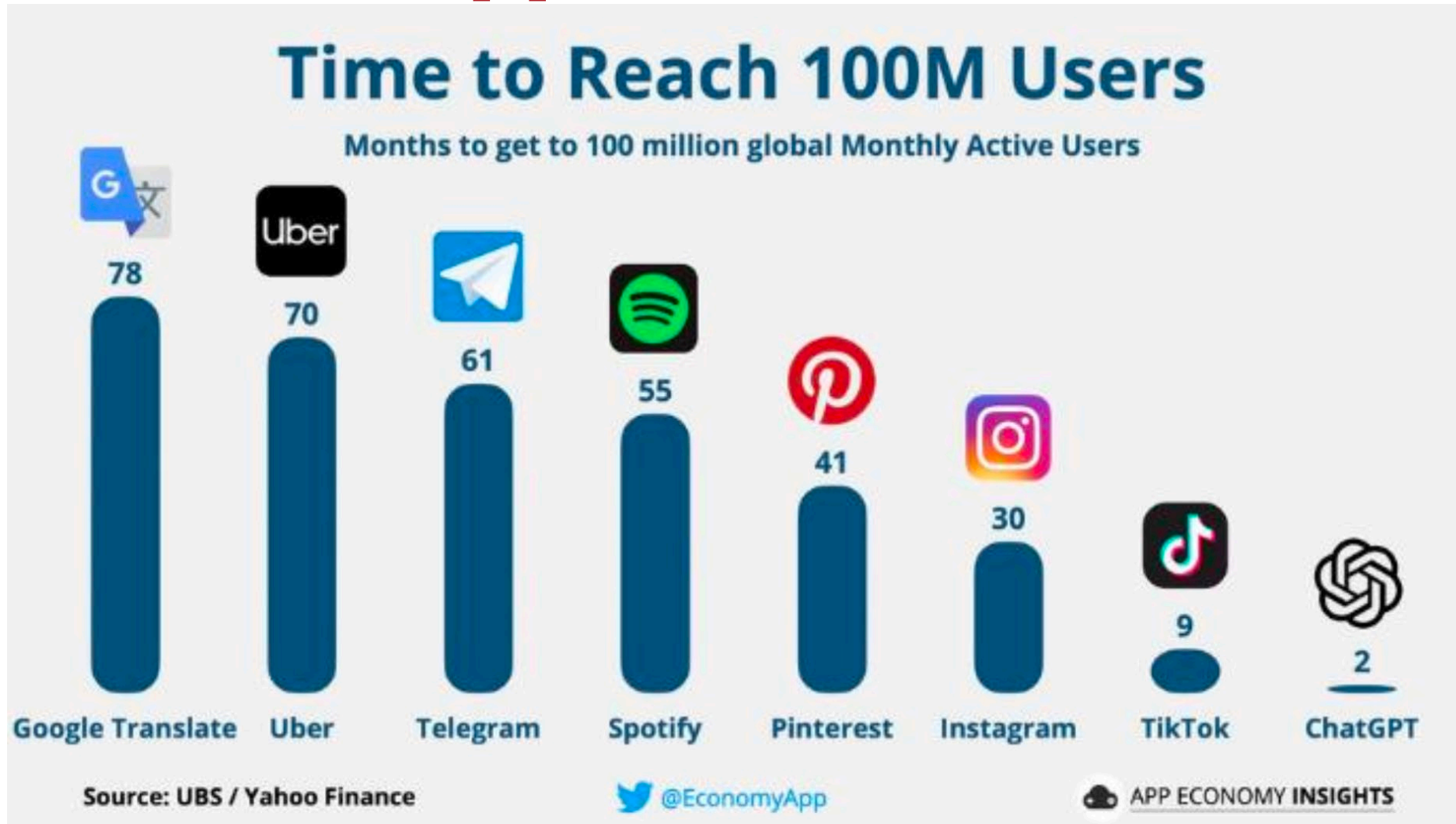
Agriculture: improving crop yields, managing resources, predicting weather patterns.

Generative AI – Fall 2022
Put AI tools in everyone's hands

- Microsoft Copilot (General Business use)
- ChatGPT 4 (Generative Pre-Trained Transformer—Content Generation)
- Gemini (Real-time Online resources)
- GitHub Copilot (For Code Generation)
- DALL-E 3 (Image Generation)
- Midjourney (Advanced Image Generation)
- Synthesia and Sora (Video Creation)
- Jasper (Digital Marketing)

... and it happened FAST

Time to Reach 100M Users

Months to get to 100 million global Monthly Active Users

Google Translate	Uber	Telegram	Spotify	Pinterest	Instagram	TikTok	ChatGPT
78	70	61	55	41	30	9	2

Source: UBS / Yahoo Finance   @EconomyApp   APP ECONOMY INSIGHTS

AI at ISU

Overview of existing efforts

IOWA STATE UNIVERSITY
Information Technology Services

Selected Current Activities

Centers
- Translational AI Center
- AI Institute for Resilient Agriculture (AIIRA)

AI in Teaching and Learning
- Faculty Conference
- CELT Series
- Academic Programs - Master of Science in AI

- Colleges, Departments and Individuals
  - Investigating tools – e.g. chatbots, individual tutors

Committee Formation, Objectives and Deliverables

To explore the potential of AI at Iowa State University and the impact of AI ISU's mission.

To identify opportunities, risks, strategies for implementation.

How do we Succeed?

- Established subcommittees and associated leads
  - Policy and Governance
  - Learning and Teaching (and programs)
  - Research
  - Communication
  - *Operational Efficiencies*

Ethics infused throughout

- Research what other institutions are doing
  - ITS Innovations group has started this process
- Leverage contracts/memberships
  - (e.g. EDUCAUSE, Gartner, APLU, Internet2)
- Develop/create a 'playground' where faculty and staff can try AI tools
  - Provide resources/services to guide use

Subcommittee Outcomes and Deliverables

- Inventory of current projects and initiatives

- Discuss potential new projects and initiatives

- Identification of risks and opportunities, and support for implementation

- Plans for collaboration with other organizations and stakeholders

AI Committee List

- Abram Anders (SICTR)
- Kris Baldwin (EX PD)
- Mind Balmer (UHR)
- Barb Biederman (U CSL)
- Sara Marcketti (CELT)
- Kevin Houlette (OPFIN)
- Angie Hunt (SRC)
- Baskar Ganapathysubramania (ME)

- James Reecy (VPR)
- Matt Pistiili (VPSA)
- Hridesh Rajan (COM S)
- Scott Samuelson (PH RS)
- Ben Van Dusen (SOE)
- Cyndi Wiley (ITS)
- Mike Lohrbach (ITS)
- Kristen Constant (ITS)

Generative AI Tools

- Microsoft
- Adobe
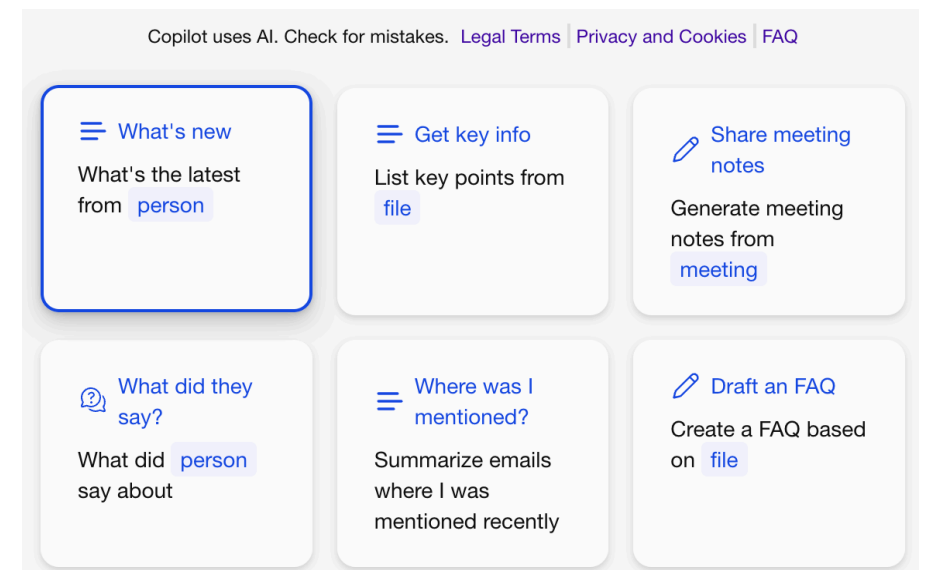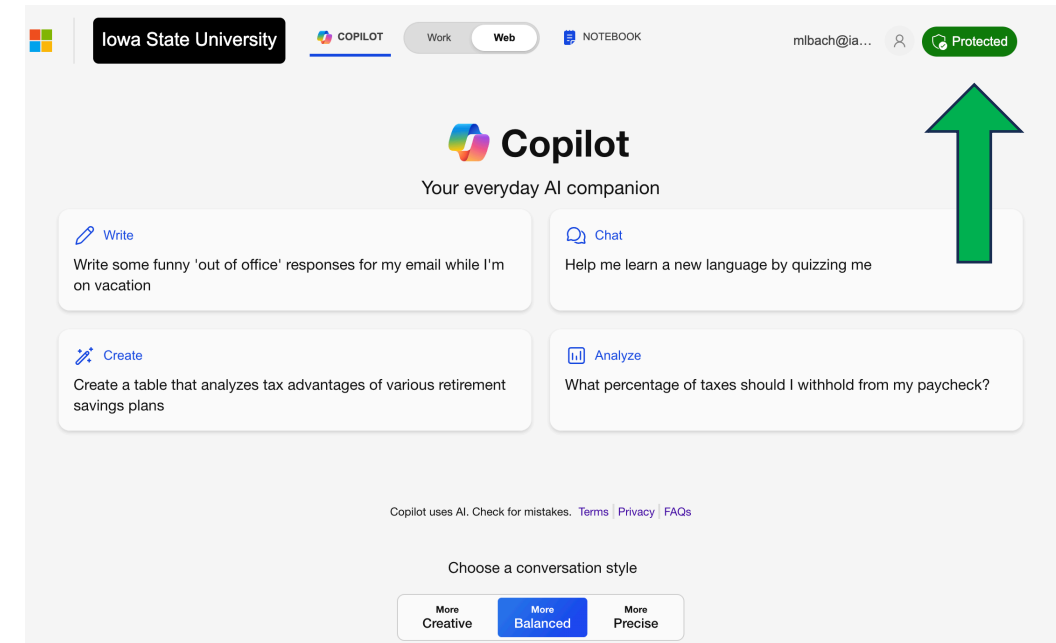- SiteImprove
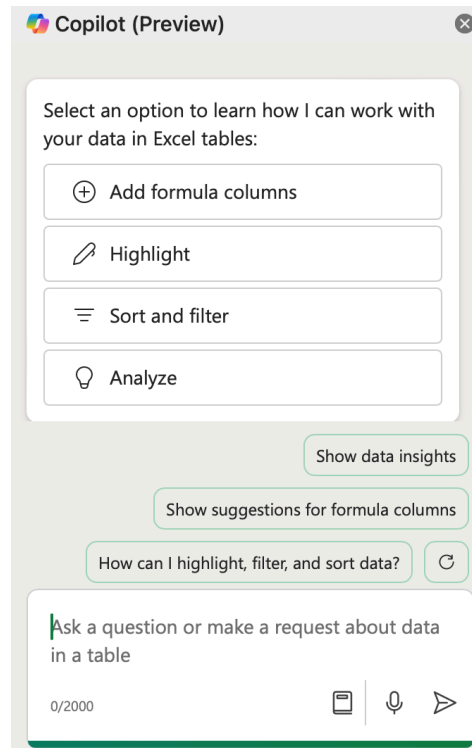- Anthology
- Grammarly
- Top Hat
- Gradescope

Microsoft Copilot

- ## Microsoft Copilot
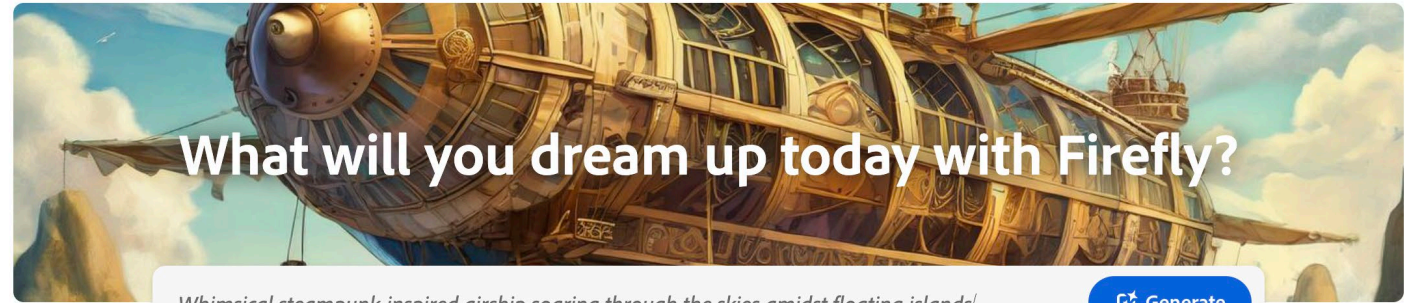 - Faculty, Staff and Students
  - Secure search

- ## M365 Copilot
  - Monthly fee
  - Integrated into Microsoft Office Suite
  - Summarize meetings
  - Draft emails
  - Summarize data
  - Create charts
  - Create presentations

Adobe Firefly

- Available to Faculty and Staff upon request
- Many other free image generation tools are available

What will you dream up today with Firefly?

Whimsical steampunk-inspired airship soaring through the skies amidst floating islands | Generate |

Try these out

Experiment with the latest in generative AI and let us know what you think.

Text to image
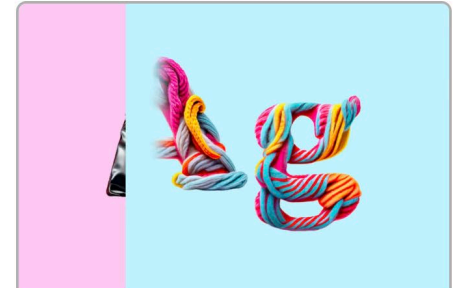Generate images from a detailed description and guide style with a reference image. | Generate |

Generative fill
Use a brush to remove objects, or paint in new ones from text descriptions | Generate |

Text effects
Apply styles or textures to text with a text prompt. | Generate |

And More…

- SiteImprove
  - Generate - AI-generated suggestions optimized content experience such as readability level, length of the content, writing style, inclusive language, and active voice
  - Remediate - Web Ops teams can get instant, AI-driven recommendations on how to fix errors on their website to improve SEO and Web Accessibility
- Anthology Ally Accessible Course Design - designed to help instructors create more engaging learning experiences more quickly and provide granular, easy-to-action insight on learners' progress
- Grammarly - compose, ideate, rewrite, and reply with a ready-to-go AI co-creator that understands your communication context and goals
- Top Hat Ace - generate questions, hints, and explanations, giving students more opportunities for practice and immediate feedback
- Gradescope AI
  - Offers the ability to form and grade answer groups, instead of individual student answers
  - Gradescope AI automatically forms suggested answer groups for your review

AI – Security, Privacy, and Best Practices

- Be aware of hallucinations

- Fact check the outputs

- Do not load private or personally identifiable data unless you are sure the system you are using is secure (like Microsoft Copilot when logged in)

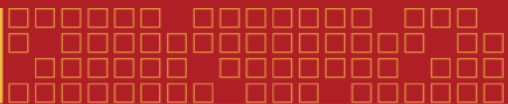- Be aware of deep fakes (Voice, Video)

- More to come from Rich

AI Questions and Support

- ITS Solution Center
  - solution@iastate.edu
  - (515)294-4000
  - [ISU Portal](#)

- aifeedback@iastate.edu

ITS Security Team

- Dedicated team focused on safeguarding ISU data and technology

- Service-oriented
  - Incident response
  - Research security
  - Computer forensics
  - Infrastructure security
  - Cloud vendor security
  - Regulatory compliance
  - …many others

- https://www.it.iastate.edu/security

AI Security Considerations

- Using generative AI = Privacy consideration
  - If the service is free, your data is the product
  - Microsoft Copilot services are safe (included in our subscription)
  - Other services will use the data you give them however they like
  - You can use other services, just don't share ISU intellectual property or student data with them
- Building AI? = Safety consideration
  - Use a framework to make it secure and trustworthy
  - NIST has a good one

How are things going at ISU?

- Year over year metrics are consistent
  - Spam and Phishing emails detected - between 3 and 4 million
  - Network malware detections – around 500
  - Malware blocked in email – between 30k and 40k
- Phishing reports have been steadily increasing
  - 2019: 394
  - 2020: 936
  - 2021: 1592
  - 2022: 4015
  - 2023: 5339
- Each report increases the likelihood that we'll find an attacker

Cybersecurity News

- Cyber incidents are happening near us:
  - Des Moines Public Schools – Jan 2023
  - University of Michigan – Aug 2023
  - K-State – January 2024
  - City of Dyersville – February 2024

- Some were ransomware victims

- Some caught the attackers early enough and only suffered outages while they contained and recovered from the compromise.

Did ISU Get Hacked?

- We handle lots of minor cyber security incidents, but none were at this scale

- Types of minor incidents we handle:
  - Web site defacements
  - ISU Net-IDs hijacked to send job scams
  - Malware on student computers

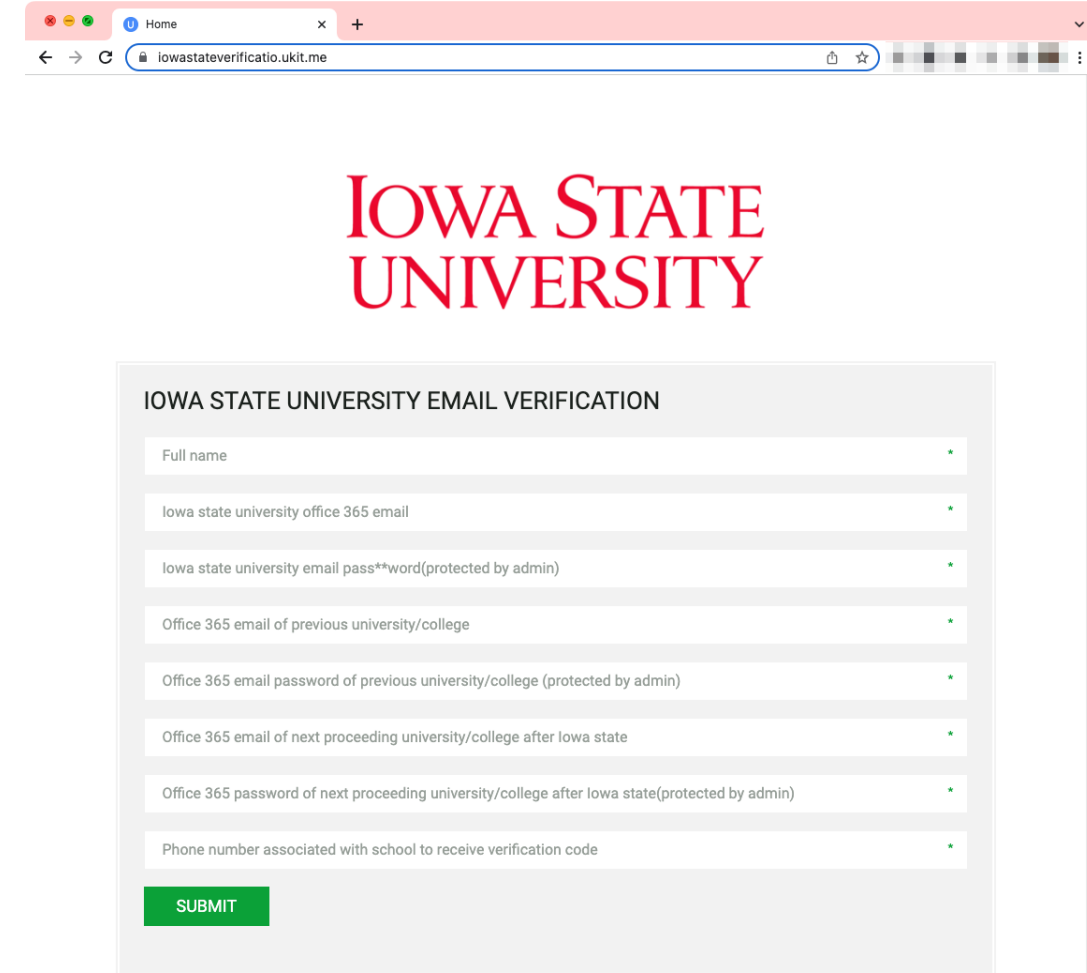- The only breaches that involved personal information were due to third parties we use:

  (TIAA, National Student Clearinghouse)

How are other schools getting breached?

- We don't have specifics
- Most institutions are compromised through phishing or a computer system that was missing a security update
- Attackers like to target individuals with privileged access
- Sometimes they takeover an account of a well-trusted individual and use that account to lure their actual targets into downloading malware
- And then use their backdoors to search for data with the intent to extort the victim for money

Doesn't MFA protect us?

- Multi-factor authentication helps, but the attackers have adapted

- They threaten to deactivate a student's account unless they fill out a form

- They not only collect the student's password, but also their phone number.

The second-stage phish

- The attacker tests the passwords they collected to make sure they work

- The attacker logs into the student account and gets prompted for MFA

- The attacker texts the student and socially engineers them into giving up their MFA code
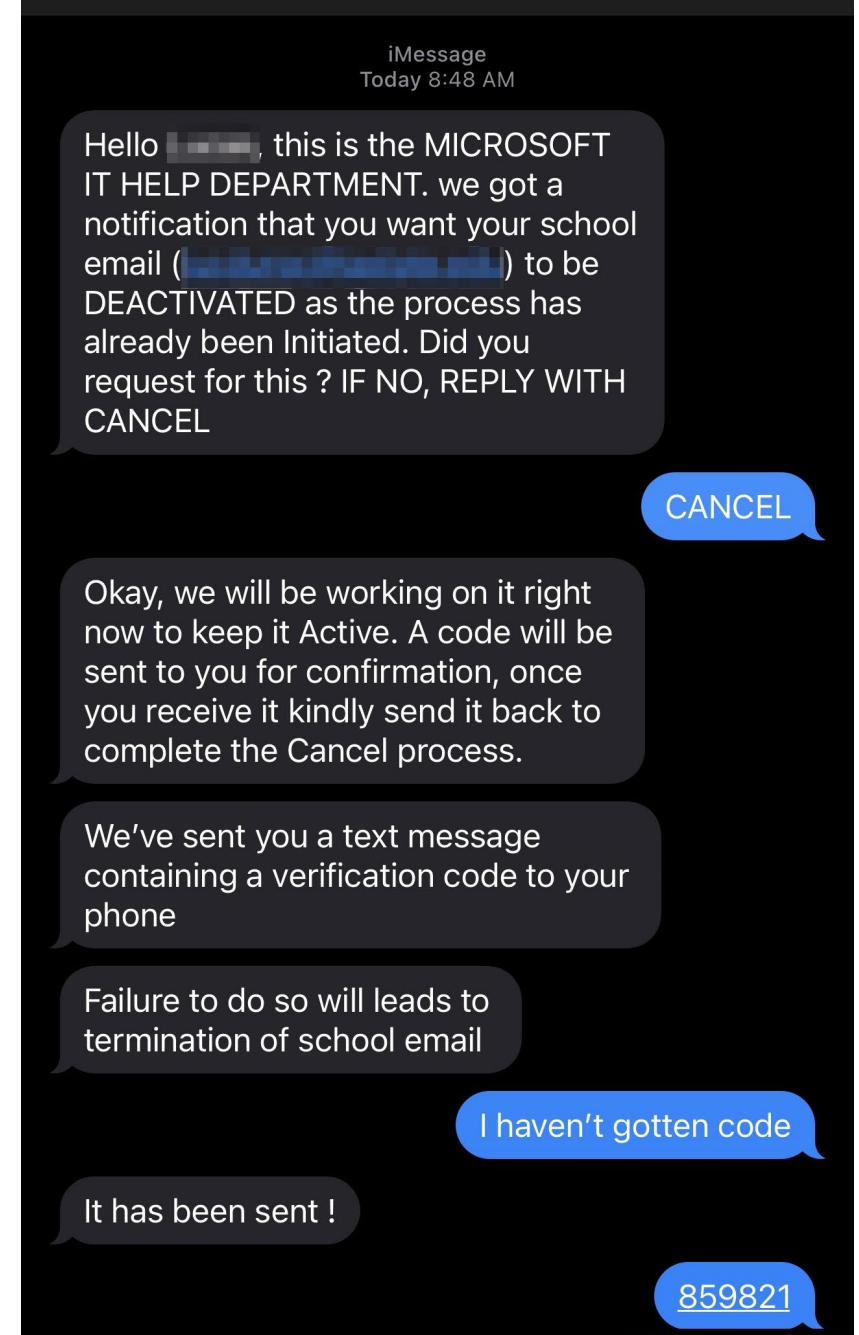
June 2023 Job Scam

- 100 students were successfully phished
- Over 600,000 phishing and scam emails were sent
- Attackers email from a non-ISU address
- They takeover ISU accounts to further phish from an ISU email
- They takeover even more accounts
- They launch a work-from home job scam as their finale
- There is some good news though…

Improving our Response Process

- We protected 50% of those phished accounts
- We had excellent coordination between three separate ITS teams

Malware Detection Improvements

- Sophisticated threat actors will use malware to maintain a foothold

- We've upgraded our Microsoft subscription to include better security

- Microsoft Defender for Endpoint is licensed for every employee

- We can detect hackers even when there is no malware or virus

- It's built into Windows and runs on macOS

- But it's not turned on until your IT professional enables it

We Need Your Help

- We need Defender for Endpoint running everywhere
- This is the only way for us to catch an attacker before they cause a ransomware event
- It even helps us find an attacker when people take their computer off-campus
- Talk to your departmental IT leaders about making this a priority
- CorePlus, LAS and Design colleges are already on-boarded

Security Tips to Remember

- Watch out for phishing emails and texts and report them
- We'll never ask you for your password or MFA code
- Install software security updates quickly
- Screen lock your device when unattended
- Don't download sensitive data to a personal device
- Report stolen devices to the IT security team