

THE RISE OF THE IOT

MEDICAL

ADAPTING TO AN EVOLVING THREAT LANDSCAPE WHILE PROTECTING PATIENT
SAFETY, SECURITY, AND PRIVACY





ASH LUFT
@ashluft



Education

Computer Science
Biochemistry
Electrical Engineering



Experience

Software Development
Medical Device Design &
Development



AGENDA



IoT



IoMT
^
(Medical)



AWESOME
BUT RISKY



MAKING IT
BETTER



IoT = INTERNET OF THINGS



VISUAL SYSTEM: CCD 517.3

ARTIFICIAL INTELLIGENCE
SYSTEM: K177

MACHINE IDENT:
TALKIE TOASTER

MANUFACTURER:
TAIWAN



RECOMMENDED
RETAIL PRICE: \$€19.99
PLUS TAX!

Copyright Grant/Naylor 1988

SCI-FI TOASTER



techcrunch.com



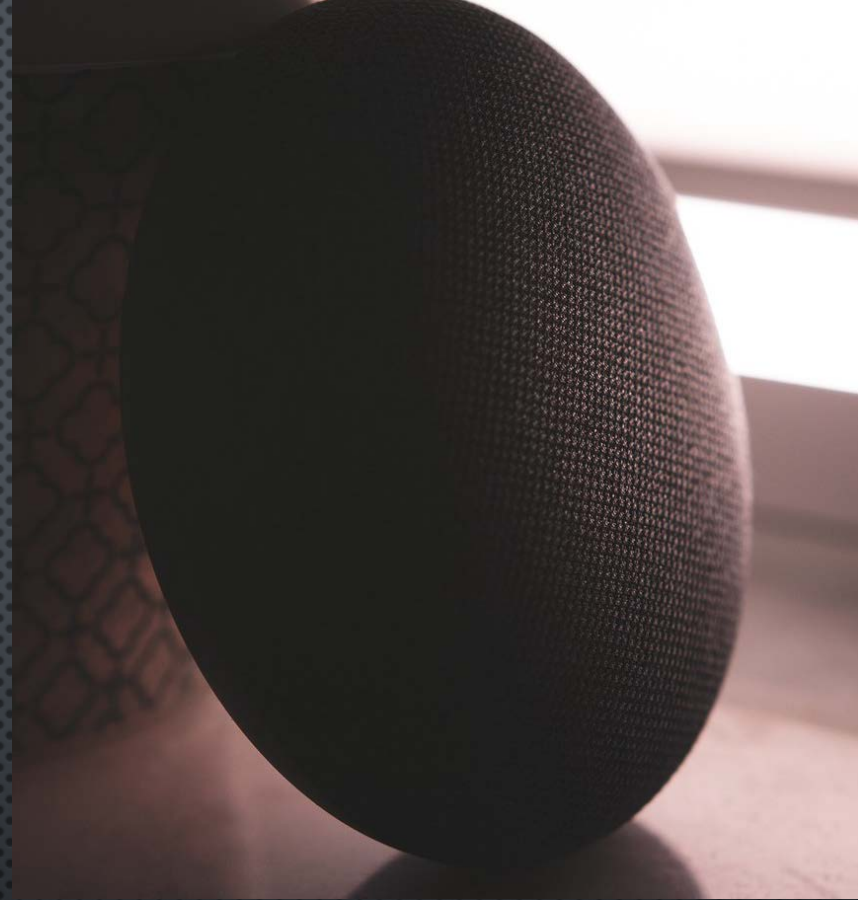
Wi-Fi TOASTER



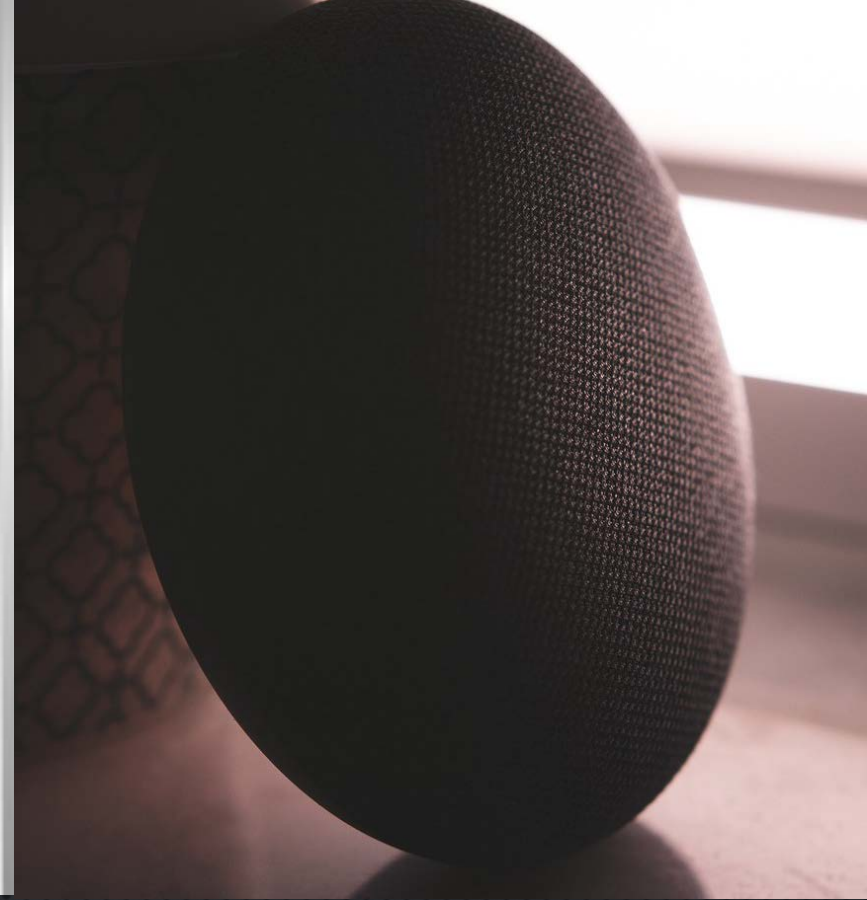
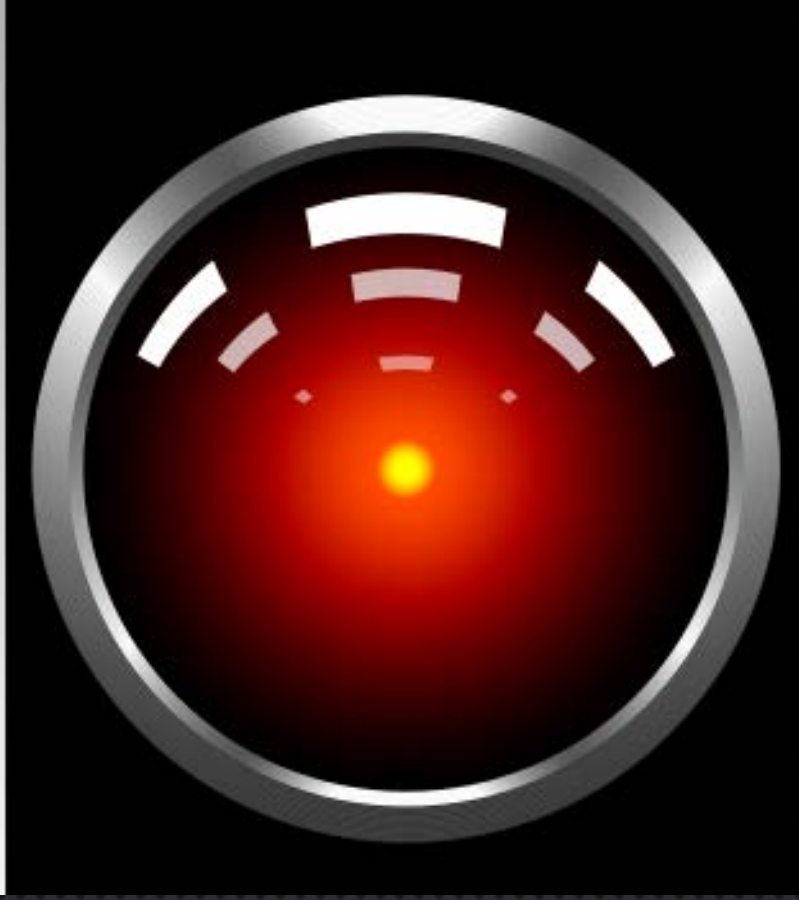
IoT = INTERNET OF THINGS



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IoT = INTERNET OF THINGS



IoMT = INTERNET OF MEDICAL THINGS



IoMT: THE BENEFITS



IoMT: THE BENEFITS



Supply Chain Management



Infection Control



Medication Adherence



Remote Patient monitoring



Asset Management



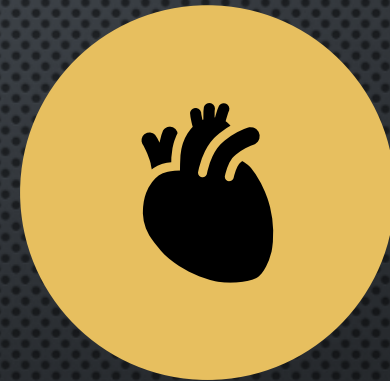
IoMT: THE BENEFITS



INSULIN
PUMPS

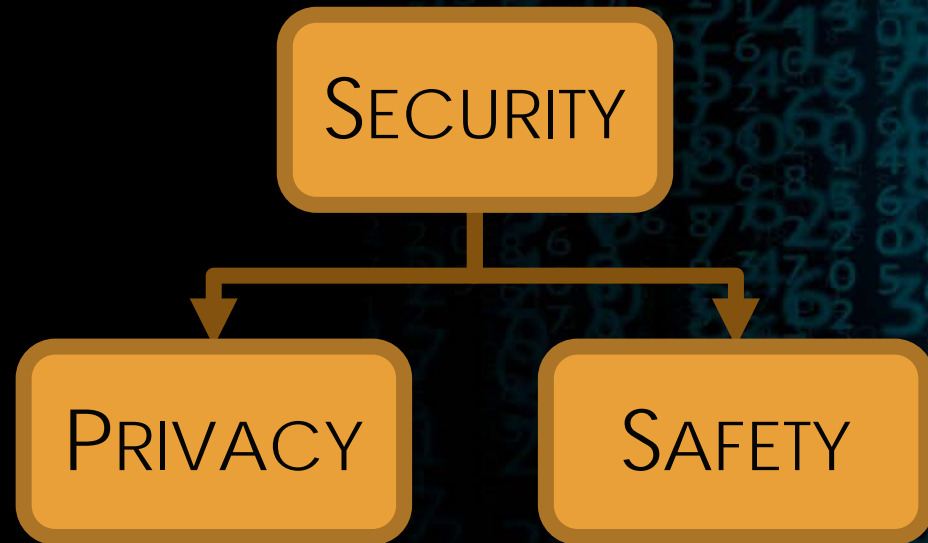


DRUG INFUSION
PUMPS



IMPLANTS/
PACEMAKERS

IoMT: THE RISKS





WHAT'S THE WORST CASE SCENARIO?



No harm from
vulnerabilities

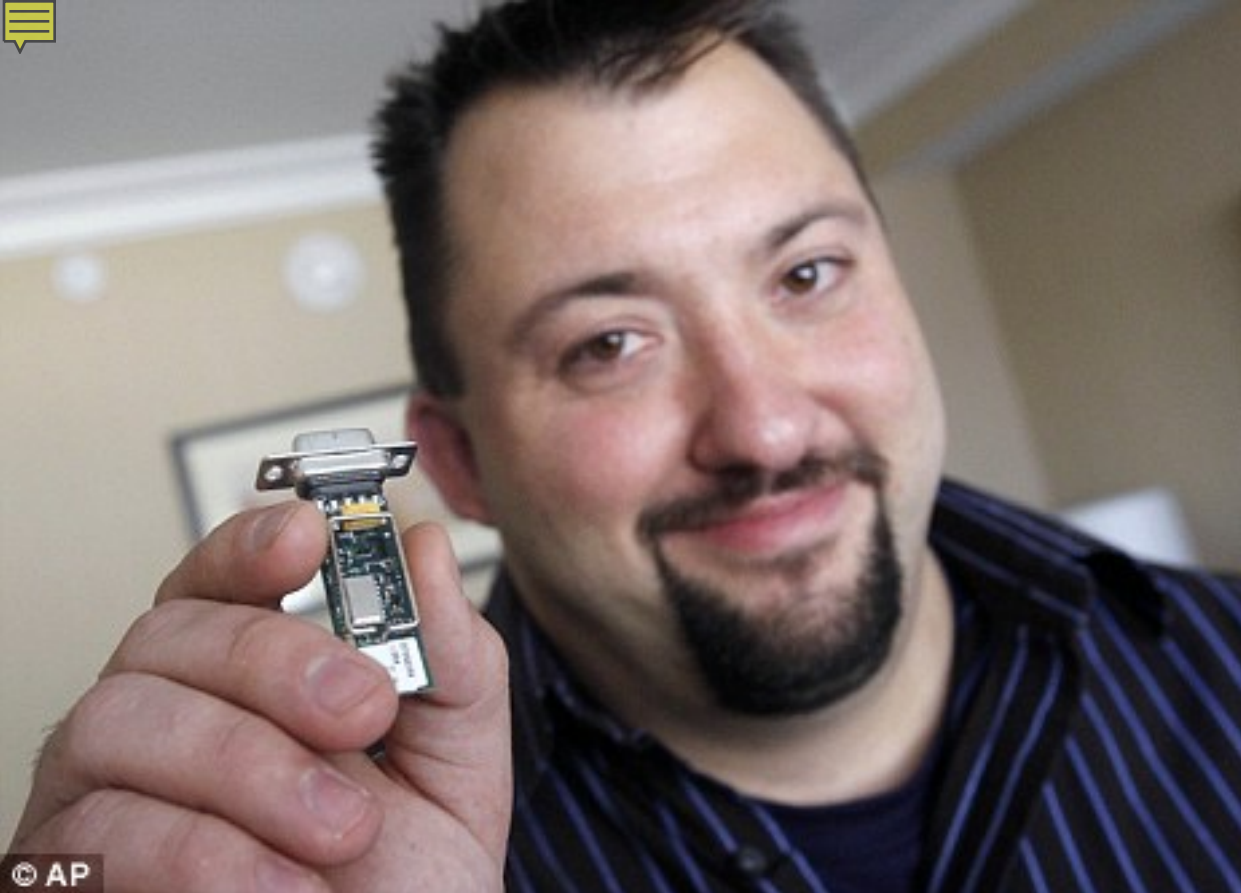


Adverse events from
software



Demonstrated
Exploitation

GOOD NEWS
&
BAD NEWS



Jay Radcliffe
@jradcliffe02



Marie Moe
@MarieGMoe

SUCCESSFUL EXPLOITATION



MAKING IT BETTER



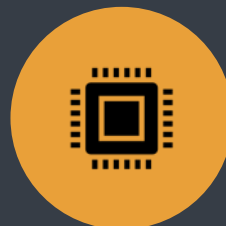
SECURITY
PROFESSIONALS &
RESEARCHERS



INTERNATIONAL
ADVOCACY
GROUPS



STANDARDS &
REGULATORY
BODIES



DEVICE
MANUFACTURERS



HEALTHCARE
PROVIDERS



PATIENTS & PEOPLE
LIKE YOU!



*Advancing Technology
for Humanity*

I Am The Cavalry

A Hippocratic Oath For Connected Medical Devices



OWASP

Open Web Application
Security Project

NIST

National Institute of Standards and Technology
Technology Administration, U.S. Department of Commerce

FDA

**U.S. FOOD & DRUG
ADMINISTRATION**



MAKING IT BETTER



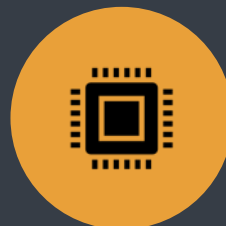
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PATIENTS & PEOPLE
LIKE YOU!



MAKING IT BETTER



IoMT Is Here



Emerging Benefits and Evolving Risk



Adapt to Threat Landscape



Work together to prevent harm