Re-imagining Security with Cyberpsychology-Informed Network Defenses (ReSCIND) Proposers' Day

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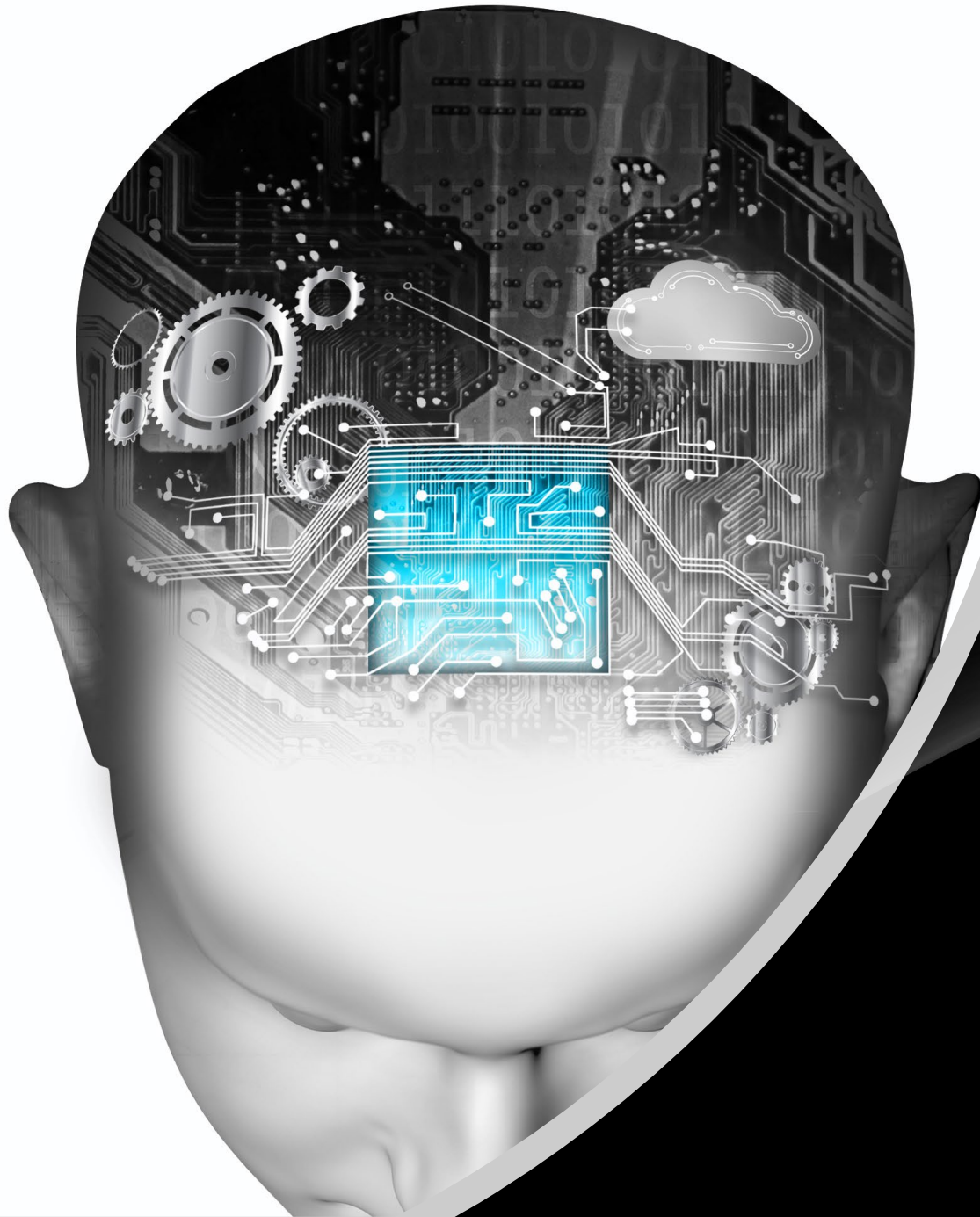Professor of Forensic Cyberpsychology University of East London

Cyber Behavioral Sciences

Cyberpsychology is 'the new Psychology' (Norman, 2008)

Forensic Cyberpsychology (Connolly et al., 2016)

Exponential growth 'unprecedentedly pervasive and profound influence of the internet on human beings' (Yan, 2012)

The Psychology of Cyberspace

NATO (2016) recognized Cyberspace, domain of warfare - an environment

Three layers of Cyberspace: Physical Network, Logical Network & Cyber-Persona layers (JP 3 -12)

Environmental Psychology (Proshansky, 1987)

Need to conceptualize Cyberspace powerful psychological environment

'State & Trait' in Cyber Contexts

To understand human behavior & decision-making in the cyber domain - factor in powerful cyberpsychological drivers:

Anonymity (Joinson, 2001)

Online Disinhibition Effect (Suler, 2004)

Escalation/Amplification (White & Horvitz, 2008; Aiken, 2016a)

Online Syndication (Aiken, 2016a)

Impulsivity & Compulsivity (Aiken et al, 2016)

Dark Triad & Tetrad Traits (Buckels et al, 2014, Aiken et al, 2023)

Cognitive Effects in Cyber Operations

Develop cyberpsychology-informed defenses leverage attacker's human limitations, innate decision-making biases & cognitive vulnerabilities

- Behavioural Manipulation Online - explored in "Manipulating Fast & Slow" (Aiken, 2018)

Characterizing Defensive & Offensive Operators

- Understand cognitive, social, developmental, affective & motivational aspects of behaviour

- Investigate additional aspects for example resilience, experiential factors, & personality traits

Cyber Behavioural Profiling

- Aiken et al, (2023), "*Human Drivers of Cybercrime: A Forensic Cyberpsychology Approach to Behavioural Profiling.*" Manuscript in preparation.

Theoretical Approach

Theory Planned Behavior (Ajzen, 1985) focus on understanding human factors that determine criminal behaviours, online disinhibition & decision-making processes "Intention to Hack? Applying the Theory of Planned Behaviour to Youth Criminal Hacking" (Aiken et al, 2023)

Grounded Theory (Strauss & Corbin, 1994) research method concerned with the generation of theory, which is 'grounded' in data that has been systematically collected and analysed.

Quantum Cognition Theory (Bruza et al., 2015) applies mathematical principles behind quantum mechanics to understand human behaviour "When something is irrational in decision-making, it's because it's against what a classical probability-based decision model should predict…but humans don't behave in that way"(Bruza et al., 2015)

Operational Cyberpsychology
(Spitaletta, 2021)

- **Operational Psychology** "specialty within the field of psychology that applies behavioral science principles to enable key decision makers to more effectively understand, develop, target, and/or influence an individual, group or organization to accomplish tactical, operational, or strategic objectives within the domain of national security or national defense" (Staal & Stephenson, 2013, p. 97).
Also known as PSYOPs

- ReSCIND utilzing Operational Cyberpsychology or CyPSYOPs

Thank you

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