

1. Record Nr.	UNINA9910865246903321
Autore	Schmorrow Dylan D
Titolo	Augmented Cognition : 18th International Conference, AC 2024, Held as Part of the 26th HCI International Conference, HCII 2024, Washington, DC, USA, June 29–July 4, 2024, Proceedings, Part I // edited by Dylan D. Schmorrow, Cali M. Fidopiastis
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2024
ISBN	9783031615696 9783031615689
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (271 pages)
Collana	Lecture Notes in Artificial Intelligence, , 2945-9141 ; ; 14694
Altri autori (Persone)	FidopiastisCali M
Disciplina	005.437 004.019
Soggetti	User interfaces (Computer systems) Human-computer interaction Artificial intelligence Computer networks Computers Social sciences - Data processing Image processing - Digital techniques Computer vision User Interfaces and Human Computer Interaction Artificial Intelligence Computer Communication Networks Computing Milieux Computer Application in Social and Behavioral Sciences Computer Imaging, Vision, Pattern Recognition and Graphics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Foreword -- HCI International 2024 Thematic Areas and Affiliated Conferences -- List of Conference Proceedings Volumes Appearing Before the Conference -- Preface -- 18th International Conference on Augmented Cognition (AC 2024) -- HCI International

2025 Conference -- Contents - Part I -- Contents - Part II --  
Understanding Cognitive Processes and Human Performance -- Not All  
Victims Are Created Equal: Investigating Differential Phishing  
Susceptibility -- 1 Introduction -- 1.1 Differing Patterns of Phishing  
Susceptibility -- 1.2 Working to Unravel the Mystery of Repeat Clickers  
-- 1.3 Research Questions -- 1.4 Human Phishing Detection Difficulty  
Using the NIST Phish Scale -- 2 Methods -- 2.1 Participants -- 2.2  
Study Protocol -- 2.3 Questionnaires -- 2.4 Email Detection Difficulty  
-- 2.5 Data Analysis -- 3 Results -- 3.1 Individual Differences, RQ1 --  
3.2 Social Engineering Tactics, RQ2 -- 3.3 Contextual Factors, RQ3 --  
4 Discussion -- 4.1 Individual Differences, RQ1 -- 4.2 Social  
Engineering Tactics, RQ2 -- 4.3 Contextual Factors, RQ3 -- 4.4 The  
NIST Phish Scale and Training Implications -- 5 Conclusion -- 6  
Disclaimer -- References -- Impostor Syndrome in Final Year Computer  
Science Students: An Eye Tracking and Biometrics Study -- 1  
Introduction -- 1.1 Goal and Research Questions -- 1.2 Contribution  
-- 1.3 Paper Structure -- 2 Related Work -- 3 Study Design -- 3.1  
Survey Design -- 3.2 Code Snippets -- 3.3 Eye Tracker and Biometric  
Device -- 3.4 Data Preprocessing -- 3.5 Participants -- 3.6 Pilot Study  
-- 4 Results -- 4.1 RQ 1: To what extent are final-year undergraduate  
computer science students confident in their program comprehension  
skills? -- 4.2 RQ 2: How Does Imposter Syndrome Affect the Cognitive  
Processes Involved in Comprehending Code? -- 5 Threats to Validity --  
6 Conclusion and Future Work -- References.  
Can Neurofeedback Training Decrease Cognitive Bias? An Exploratory  
Analysis -- 1 Introduction -- 1.1 The Iowa Gambling Task and the Win-  
Stay/Lose-Shift Strategy -- 1.2 Birkbeck EEG Neurofeedback  
and Neurophenomenology (BENN) Study -- 2 Methods -- 2.1  
Participants -- 2.2 Design -- 2.3 Materials and Procedure -- 2.4 Data  
Integrity -- 2.5 Data Processing -- 2.6 Data Analysis Strategy -- 3  
Results -- 3.1 Iowa Gambling Task Performance -- 3.2 EEG Profiles --  
3.3 Covariation Between EEG Frequency Band Power and IGT-Variables  
-- 4 Discussion -- References -- Deciphering Emotional Responses to  
Music: A Fusion of Psychophysiological Data Analysis and LSTM  
Predictive Modeling -- 1 Introduction -- 2 Literature Review -- 3  
Methodology -- 3.1 Emotion in Motion Platform -- 3.2 Physiological  
Responses Analysis -- 3.3 Model to Predict Emotional Attributes -- 4  
Evaluation and Results -- 5 Conclusion -- References -- The Influence  
of Educational and Entertainment Videos on Children's Frontal EEG  
Activity: A Case Study -- 1 Introduction -- 2 Methodology  
and Procedure -- 2.1 Procedure -- 2.2 Protocol -- 3 Results  
and Discussion -- 4 Conclusions and Further Work -- References --  
A Comparative Study of High and Low Performing Students' Visual  
Effort and Attention When Identifying Syntax Errors -- 1 Introduction  
-- 2 Method -- 2.1 Participants -- 2.2 Stimuli -- 2.3 Experimental  
Setup and Procedure -- 2.4 Comprehension Task and Evaluation -- 2.5  
Sources of Data -- 2.6 Data Pre-processing -- 2.7 Eye-Tracking  
Metrics -- 2.8 Data Analysis -- 3 Results -- 3.1 Compiler Error  
Messages for a Literal Syntax Error -- 3.2 Compiler Error Messages  
for a Non-literal Syntax Error -- 3.3 Error Lines with a Literal Syntax  
Error -- 3.4 Error Lines with a Non-literal Syntax Error -- 3.5 Literal  
Syntax Error -- 3.6 Non-literal Syntax Error -- 3.7 Literal vs. Non-  
literal Syntax Errors.  
4 Discussion -- 5 Conclusion -- References -- Mapping Signaling  
Mechanisms in Neurotoxic Injury from Sparsely Sampled Data Using  
a Constraint Satisfaction Framework -- 1 Introduction -- 2 Methods --  
2.1 A Small Set of Animal Experiments -- 2.2 Phosphoproteomic  
Profiling of Hippocampus and PFC -- 2.3 Identification

of a Phosphoproteomic Regulatory Network in Brain -- 2.4 Mapping Regulatory Traps and Escape Trajectories -- 3 Results -- 3.1 Plausible Regulatory Response Networks -- 3.2 Predicting Persistent Illness as a Regulatory Trap -- 3.3 Predicted Rescue Strategies -- 4 Discussion -- References -- An Integrative Assessment of Cognitive-Motor Processes Underlying Mental Workload and Performance Under Varying Levels of Controllability -- 1 Introduction -- 2 Methods -- 2.1 Description of Task -- 2.2 Procedure -- 3 Signal Processing -- 3.1 Performance Scoring Criteria -- 3.2 Statistical Analysis -- 4 Results -- 4.1 Bedford Workload Scale -- 4.2 NASA-TLX Overall Workload -- 4.3 Ratio -- 4.4 Performance -- 5 Discussion -- References -- Advancing Cognitive Abilities and Performance with Augmented Tools -- Does Using ChatGPT Result in Human Cognitive Augmentation? -- 1 Introduction -- 2 Previous Work -- 2.1 Cognitive Systems -- 2.2 Cognitive Augmentation -- 2.3 ChatGPT and Cognitive Augmentation -- 3 The Experiments -- 3.1 Innovation Challenge -- 3.2 Retirement Decision -- 4 The Results -- 4.1 Innovation Challenge Results -- 4.2 Retirement Decision Results -- 5 Conclusion -- References -- Assessment of a Novel Virtual Environment for Examining Cognitive-Motor Processes During Execution of Action Sequences in a Human-Robot Teaming Context -- 1 Introduction -- 2 Material and Methods -- 2.1 The Virtual Environment -- 2.2 Experimental Evaluation -- 3 Results -- 3.1 Usability -- 3.2 Workload -- 3.3 Human Performance Alone and Human-Robot Team Performance. 3.4 Human Perception of the Humanoid Robotic Teammate -- 4 Discussion -- 4.1 Usability and Workload When Individuals Perform Alone and with the Robotic Teammate -- 4.2 Effects of Robotic Teammate on Performance, Human Workload and Perception -- 4.3 Conclusions, Limitations, and Future Work -- References -- Measuring Cognitive Workload in Augmented Reality Learning Environments Through Pupil Area Analysis -- 1 Introduction -- 2 Literature Review -- 3 Methodology -- 3.1 Experimental Design -- 3.2 Data Analysis for Pupil Eye Tracking -- 4 Results -- 4.1 Pupil Dilation Analysis -- 4.2 Relation Between Pupil Dilation and Mental Demand -- 5 Discussion -- 6 Conclusion -- References -- Human Performance in Vehicle Recognition with Visual and Infrared Images from Unmanned Aerial Vehicle -- 1 Introduction -- 2 Experiment 1 - Visual Images -- 2.1 Method -- 2.2 Results -- 3 Experiment 2 - Infrared Images -- 3.1 Method -- 3.2 Results -- 4 Discussion -- 4.1 Limitations and Further Research -- 4.2 Conclusion -- References -- A Mixed-Methods Approach for the Evaluation of Situational Awareness and User Experience with Augmented Reality Technologies -- 1 Introduction -- 2 Background and Related Work -- 3 Methodology -- 3.1 XR Simulation -- 3.2 Scenario-Based Trials -- 4 The DARLENE System Evaluation: Applying the Evaluation Protocol -- 5 Results -- 5.1 Perceived Situational Awareness -- 5.2 Observed Situational Awareness -- 5.3 Workload -- 5.4 User Experience -- 5.5 DARLENE Acceptance -- 5.6 Equipment Wearability -- 5.7 Qualitative Feedback -- 5.8 Results from the Hands-On Evaluation -- 6 Discussion and Lessons Learned -- 7 Conclusions -- References -- Enhancing Cognition Through Cooperative Learning and Augmented Mentorship -- 1 Introduction -- 1.1 Cybersecurity Education -- 2 Exploratory Analytics -- 2.1 Setting and Participants -- 2.2 Project Tasks -- 2.3 Analysis. 3 Results -- 3.1 How Does Students' Time on Task Influence Their Ability to Accomplish Assignments? -- 4 External and Internal Content Study -- 4.1 Background -- 4.2 What Types of Approaches are Best Aligned with Performance? -- 4.3 How Can Student Differences Influence Security Education Design? -- 5 Discussion -- 5.1

Conclusions and Future Directions -- References -- Digital Twins and Extended Reality for Tailoring Better Adapted Cybersecurity Trainings in Critical Infrastructures -- 1 Introduction -- 2 The State of Cybersecurity Training -- 2.1 The Context of Operational Technology -- 2.2 Current Approaches to Cybersecurity Training -- 2.3 Cybersecurity Training and Human Factors -- 3 Extended Reality and the Digital Twin -- 3.1 Extended Reality -- 3.2 Digital Twins -- 3.3 A Combined Use -- 4 Human-Centered Trainings -- 4.1 Replicable Features -- 4.2 Enhanced and Facilitated Human Factors -- 5 Discussion -- 5.1 Ethical Concerns -- 6 Future Work Directions -- 7 Conclusion -- References -- Author Index.

---

## Sommario/riassunto

This book constitutes the refereed proceedings of the 18th International Conference on Augmented Cognition, AC 2024, held as part of the 26th HCI International Conference, HCII 2024, which took place in Washington, DC, USA, during June 29–July 4, 2024. The total of 1271 papers and 309 posters included in the HCII 2024 proceedings was carefully reviewed and selected from 5108 submissions. The AC 2024 proceedings were organized in the following topical sections: Part I: Understanding cognitive processes and human performance; advancing cognitive abilities and performance with augmented tools; Part II: Advances in augmented cognition technologies; applications of augmented cognition in various contexts.

---