

1. Record Nr.	UNINA9910488699103321
Titolo	Advances in Manufacturing, Production Management and Process Control : Proceedings of the AHFE 2021 Virtual Conferences on Human Aspects of Advanced Manufacturing, Advanced Production Management and Process Control, and Additive Manufacturing, Modeling Systems and 3D Prototyping, July 25-29, 2021, USA / / edited by Stefan Trzcielinski, Beata Mrugalska, Waldemar Karwowski, Emilio Rossi, Massimo Di Nicolantonio
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2021
ISBN	3-030-80462-3
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (490 pages)
Collana	Lecture Notes in Networks and Systems, , 2367-3389 ; ; 274
Disciplina	658.15
Soggetti	Industrial Management Production engineering Cooperating objects (Computer systems) Mechanical Process Engineering Cyber-Physical Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Advances in Human Factors and Ergonomics 2021 -- Preface -- Contents -- Advanced Technologies and Manufacturing Processes for 3D Printing -- Determining the Optimal Orientation of AM-Parts Based on Native 3D CAD Data -- 1 Introduction -- 2 Related Work -- 3 Concept -- 4 Application Example -- 5 Conclusion -- References -- Node-Based Shape Optimization and Mechanical Test Validation of Complex Metal Components and Support Structures, Manufactured by Laser Powder Bed Fusion -- 1 Introduction -- 2 Tensegrity-Structure Design -- 3 Node-Based Shape Optimization and Vertex Morphing -- 4 Shape Optimization of the Tensegrity-Node -- 5 Validation of the Optimization by Mechanical Testing -- 6 Numerical Results and Comparison with Test Results -- 7 Summary and Conclusion -- 8 Outlook -- References -- A Semi-skilled Fabrication Approach of Shape-Changing Interfaces through Fused Filament Fabrication -- 1

Introduction -- 2 Methods -- 2.1 Experimental -- 2.2 Iterative Design
 Solutions -- 2.3 Results -- 3 Design Exploration -- 3.1 Case Study --
 3.2 Experiment and Verification -- 4 Conclusion and Future Work --
 References -- Printing Small: Measuring the Resolution Limits of CLIP
 Technology -- 1 Introduction -- 2 Material and Methods -- 3 Results
 -- 3.1 Positive Features (Solid Parts) -- 3.2 Negative Features -- 3.3
 Combined Chessboard Structure -- 4 Conclusion -- References --
 Development of an Elastic Inflatable Actuator for Active Seating Systems
 -- 1 Introduction -- 2 Methods -- 2.1 Requirements -- 2.2 Design
 of a Soft Actuator -- 2.3 Material Tests -- 2.4 FEA Model -- 2.5
 Experiment -- 3 Results and Discussion -- 4 Conclusion -- References
 -- 3D Printing Design Applications -- Reusable Kit for 3D Printable
 Sustainable Cutlery -- 1 Introduction -- 2 Strategies and Opportunities
 for Sustainable 3D Printing -- 3 Design Scenario.
 4 Design Experimentation -- 4.1 Survey and Data Analysis -- 4.2
 Concept Design -- 4.3 3D Design Thinking -- 4.4 Final Design -- 5
 Materials, Regeneration Process and Obsolescence Strategy -- 6
 Conclusions -- References -- A Systematic Review of Differences
 Between Conventional Orthoses and 3D-Printed Orthoses -- 1
 Introduction -- 2 Method -- 3 Results and Discussion -- 4 Conclusions
 -- References -- Product Design and Development by Additive
 Manufacturing for Automotive Systems -- 1 Introduction -- 2 Additive
 Manufacturing Approach -- 3 HuD's Product Design and Manufacturing
 -- 3.1 Design Concepts -- 3.2 Production and Evaluation -- 4
 Conclusions -- References -- 3D Printing and Social Inclusion:
 A Design Research Framework -- 1 Introduction -- 2 Aims
 and Methodology -- 3 Results: Design Research Framework -- 3.1
 Inclusive 3D Printing Systems -- 3.2 Accessible 3D Printing Systems --
 3.3 Community-Oriented 3D Printing Systems -- 3.4 Networked 3D
 Printing Systems for Personal and Collective Health -- 4 Conclusions --
 References -- Design of Custom Breast Prosthesis for Additive
 Manufacturing Production -- 1 Introduction -- 2 Materials
 and Methods -- 2.1 Data Acquisition -- 2.2 Exterior Prosthesis Layout
 -- 2.3 Interior Prosthesis Layout -- 2.4 Detailed Design and Finite
 Elements Analysis (FEA) -- 3 Results -- 4 Conclusions -- References --
 Advanced Production Management and Process Control -- Increasing
 Agility: A Tangible XR for Rapid Prototype Development, Design
 Exploration and Usability Assessment -- 1 Introduction -- 2 Related
 Work -- 3 A Tangible XR for Agile Development -- 4 First Application
 Scenario -- 5 Conclusion -- 6 Future Work -- References -- Applying
 Packing Problems to Optimize Throughput Time and Human
 Ergonomics in Project Shops -- 1 Introduction -- 2 Technical
 Background and Related Research -- 2.1 Project Shop Manufacturing.
 2.2 Packing Problem Heuristics -- 2.3 Related Research -- 3 Approach
 to Optimize Throughput Time and Human Ergonomics in Project Shops
 -- 4 Case Study: Application to an Industrial Project Shop -- 5
 Conclusion -- References -- Organizational Risk in Custom
 Manufacturing of Complex Products -- 1 Introduction -- 2
 Organizational Management in Industry 4.0 -- 2.1 Organizational Risk
 in Customized Manufacturing Systems -- 2.2 Significance of Historical
 Data - Case Study -- 3 Summary -- References -- Reduction of Human
 Effort in Technical Cleanliness Inspection Through Advanced Image
 Processing Approaches -- 1 Introduction -- 2 Background -- 3
 Methodology and Results -- 3.1 Extended-Depth-of-Field -- 3.2
 Shape-From-Focus -- 3.3 Image Stitching -- 3.4 Periodic Noise
 Removing Filter -- 4 Discussion and Conclusion -- References --
 Method for the Targeted Selection and Installation of an IoT - Platform
 -- 1 Introduction -- 2 IoT Ecosystem -- 3 Concept for the Selection

and Implementation of a Best-Fitting IoT-Platform -- 3.1 Selection Method -- 3.2 Setup Method -- 4 Application: Processing Real-Time Visualization of Temperature and Humidity Data -- 5 Conclusion and Outlook -- References -- Predictive Model of Rock Fragmentation Using the Neuro-Fuzzy Inference System (ANFIS) and Particle Swarm Optimization (PSO) to Estimate Fragmentation Size in Open Pit Mining -- 1 Introduction -- 2 State of the Art -- 2.1 Predictive Model of Rock Fragmentation in Open Pit Mining -- 2.2 Predictive Model of Rock Fragmentation Applying the Neuro-Diffuse Inference System (ANFIS) in Open Pit Mining -- 2.3 Predictive Model of Rock Fragmentation Applying the Particle Swarm Optimizer (PSO) Algorithm in Open Pit Mining -- 3 Input -- 3.1 General Contribution -- 3.2 Detailed Contribution -- 3.3 Indicators -- 4 Validation -- 4.1 Design of the Validation -- 4.2 Analysis of Results. 5 Conclusions -- References -- Managing the Team by Individualization. How Can Artificial Intelligence Help to Manage a Team Effectively and Increase Its Efficiency? -- 1 Introduction -- 2 Individual Differences vs Team Efficiency and Commitment -- 3 Diversity Management. Opportunities and Threats -- 4 Research Method -- 5 Conclusion -- References -- Sill Panel Corrosion in Automotive Industry -- 1 Introduction -- 2 Problem Statement -- 2.1 Customer Concern -- 2.2 Supporting Graphical Evidence -- 3 Inspection -- 3.1 Laboratory Quality Report -- 4 Conclusions -- References -- Improved Sulfuric Acid Discharge Through Combined Task and Risk Analysis -- 1 Introduction -- 2 The Process -- 3 Human Factors with Study of Times and Movements -- 3.1 Evaluation of Shift E&#amp; -- I -- 3.2 Merger Proposal Between Functions -- 4 Improvement Implementation Projects -- 4.1 Collapse Protection -- 4.2 Deployment of Online Camera Monitoring -- 4.3 Creation of a Tool to Prevent Movement of the Acid Cart at the Time of Unloading -- 5 Risks Involved in Change -- 5.1 Scenario 1 - Moving the Trailer at the Time of Unloading -- 5.2 Scenario 2 - Collapse of the Cart Due to Acid Exit in Atmospheric Air Entry to Compensate the Acid Mass Leaving the Cart -- 5.3 Scenario 3 - Drop and Inhalation of Acid Gases During the Opening of the Manhole on Top of the Cart by the Operator -- 6 Conclusion -- References -- Tacit Knowledge Awareness and Sharing as a Focal Part of Knowledge Production. Polish-US View on IT, Healthcare, and Construction Industry -- 1 Introduction -- 2 Theoretical Framework -- 3 Method -- 4 Results -- 5 Discussion -- 6 Limitations and Conclusions -- Appendix: Measurement of Constructs -- References -- Evaluation Method in Multiple Scenarios by Means of Datamine Applying the Law of Variable Cutting in Optimization of the NPV in Open Pit -- 1 Introduction. 2 State of the Art -- 2.1 VPN Optimization in Open Pit Mining Project -- 2.2 VPN Optimization in Open Pit Mining Project Through Computer Analysis -- 2.3 Optimization of NPV in Open Pit Mining Project Through the Use of Variable Cut-Off Grades -- 2.4 Optimization of the NPV in an Open Pit Mining Project Applying Variable Cut-Off Grades Using a Computer -- 3 Contributions -- 3.1 General Contribution -- 3.2 Contribution to Detail -- 4 Validation -- 4.1 Initial Study -- 4.2 Validation Design -- 5 Discussion -- 5.1 Results -- 5.2 Analysis of Results -- 6 Conclusions -- References -- Sustainment Method in Gold-Bearing Workings Using Woodpacks to Mitigate the Induced Stresses that Cause Instability in an Underground Mine that Uses Longwall Exploitation -- 1 Introduction -- 2 State of the Art -- 2.1 Support Method in Underground Mine -- 2.2 Woodpack as a Support Method in Underground Mining -- 2.3 Sustainment in Longwall Exploitation in Underground Mining -- 3 Input -- 3.1 Proposed Method

-- 3.2 Components of the Method -- 3.3 View of Indicators -- 4 Validation -- 4.1 Description of the Scenario -- 4.2 Initial Diagnosis -- 4.3 Application of the Contribution on Stage -- 5 Conclusions -- References -- Operational Reliability Investigation of Turbogenerator Based on Technological Aspects and Human Factors -- 1 Introduction -- 2 Literature Review -- 3 Methodology -- 4 Case -- 4.1 Operational Context -- 4.2 Investigation of Operational Reliability -- 4.3 Human Factors -- 4.4 Root Cause Map -- 5 Conclusion -- References -- Stability Method for Pit Dimensioning Obtained Using the Gradient Boosting Machine Algorithm in Underground Mining -- 1 Introduction -- 2 State of the Art -- 2.1 Pitting Stability Method -- 2.2 Grading Method Gradient Boosting Machine -- 2.3 Cutting Dimensioning Method -- 3 Input -- 3.1 General Contribution -- 3.2 Detail Contribution.
3.3 Contribution Process.

Sommario/riassunto

This book provides readers with a timely snapshot of human factors research and methods fostering a better integration of technologies and humans during the whole manufacturing cycle, giving a special emphasis to the quality and safety of the industrial environment for workers, the efficiency of the manufacturing processes itself, the quality of the final product, and its distribution to and use by the customers. It discusses timely issues relating to the automation of the manufacturing processes, and the challenges imposed by the implementation of industry 4.0, additive manufacturing and 3D printing technologies. Contributions cover a range of industrial sectors, such as the automotive, health and constructions ones, highlighting both organizational and engineering solutions fostering sustainability, globalization, customization, workers' well-being and consumers' satisfaction, among other issues. Based on the AHFE 2021 Conferences on Human Aspects of Advanced Manufacturing, Advanced Production Management and Process Control, and Additive Manufacturing, Modeling Systems and 3D Prototyping, held virtually on 25–29 July, 2021, from USA, this book, which merges ergonomic research and technical know-how in the field of manufacturing and product design, addresses a wide range of engineers, designers and professionals, dealing with the integration of technologies and humans in the factories of the future.
