THE GREEK PRINT-MEDIA ENGINEERS AT drups 2024



HELLENIC UNION OF GRAPHIC ARTS & MEDIA TECHNOLOGY ENGINEERS

www.helgramed.gr

Research from Greece for the World of Print!

rupa

Hall 7.0 - dna Booth G01

drupa next age Platform for Networking and New Business



HELGRAMED

😰 Ermou 27 str., GR-16233, Vyronas, Attiki, Greece

- ⊠ helgramed@gmail.com
- 🕆 www.helgramed.gr

The Hellenic Union (Association) of Graphic Arts and Media Technology Engineers (HELGRAMED), is the legal professional, educational and scientific organization of the Engineers that hold a Tertiary Education degree (EQF level 6 and above) from a Higher Education Institute (HEI) in the fields of Graphic Arts/Graphic Communication, Printing, Publishing, Packaging and Media Technology and Engineering. HELGRAMED has been officially established in 2013, being the successor of the "Hellenic Union of the Graphic and Decorative Arts Graduates", originally founded in 1980.

HELGRAMED members possess a long-established experience at a wide range of scientific development with activities and research projects both at national and international levels in R&D, innovations in printing, publishing and packaging and for the continuous development of education and training. Individual members and teams of researchers participate at numerous projects, organization of conferences and seminars, training programs and other learning activities. In addition, **HELGRAMED** contributes in studies for the development of Job profiles and occupational standards, development, evaluation and certification of competences in the fields of graphic communication, printmedia technology and packaging fields.



IMPRESSUM

HELGRAMED at **drupa 2024** Research from Greece for the World of Print!

Concept and Texts
Anastasios E. Politis 🖂 politismedia@ gmail com
Graphic Design and Layout

Dr. Evgenia Pagani 🖂 jen.pag@hotmail.com

Prepress, Printing and Finishing DIAGRAMMA S.A. - Christos Koutrouditsos, Greece Contact@diagramma.ink SPONSOR The HELGRAMED participation at drupa 2024 is sponsored by



Our appreciation for the support: Deborah Corn and Frank Tueckmantel, dna Christian Hruschka, Benedikt Salmen and Alexia Castro, Messe Düsseldorf On behalf of the Board and the members of the Hellenic Union of Graphic Arts and Media Technology Engineers – HELGRAMED, we are warmly welcoming all of you at our booth at drupa 2024 in Hall 7.0 G01 – drupa next age. Our drupa participation follows a tradition of drupa attendance since 1977 and the successful participation as an exhibitor at virtual drupa in 2021.

HELGRAMED has the overall responsibility of managing and staffing the booth of the International Circle of Educational Institutes of Graphic-Media Technology and Management (IC). This task is carried out by members of the Board of Directors of **HELGRAMED**, Print-Media engineers and students of Graphic Arts Technology from Greece.

HELGRAMED has its own space at the booth where the scientific and applied research of Greek Print-Media Engineers will be presented.

The central message of the association at **drupa 2024** is:

THE GREEK PRINT-MEDIA ENGINEERS AT drupa2024

Research from Greece, for the World of Print! The undertaking of the overall responsibility for the organization, management and staffing of the International Circles' booth, is one more proof of the acknowledgement of **HELGRAMED** and the Print-Media Engineers from Greece at international level. This proves further the trust of international research and education organizations for a reliable and efficient presence of the education and research partners and guarantee at drupa.

com

This activity of **HELGRAMED**, further enhances the credibility of Greek Print-Media Engineers internationally and sets the basis for strengthening the presence of Greece in the sector and in the center of developments in the related sectors.

The Greek print-Media Engineers represented by **HELGRAMED**, will participate actively a the dna hall and stage and they will present innovative research topics and projects contributing to the dialog for research and development and the future of print education.

We wish to all a successful drupa²⁰²⁴/

Georgios Gamprellis Chairman of the Board

Dr. Anastasios Politis Vice Chairman.

responsible for the drupa booth

The Greek Print-Media Engineers at

















The HELGRAMED PROGRAM for drupa²⁰²⁴

We, at **HELGRAMED**, have created a highly dynamic team of engineers, scientists and researchers who are covering almost all of the major developments and applications in the fields of graphic communication, printing and packaging. With exceptional experience, an extensive range of activities and a high degree of professionalism, our team is able to develop and implement complex projects in the broader field of our industries.

Ranging from digital publishing to artificial intelligence, from security printing to standardization, from materials science for printing to research on pigments and inks, from human capital development to advanced media management structures and from color science to multicolor printing and quality control, our teams of researchers guarantee the efficient implementation of any type of project to be undertaken.

drupa 2024

We are here for you!

...for cooperation on activities and projects for the Graphic Communication, Print, Media and Packaging World!

What we offer:

- A platform for cooperation in research and development for the Graphic Communication, Print, Media and Packaging fields.
- Organization of events –
 Seminars and Conferences.
- Bringing together scientists and engineers from around the globe, via our established international network.
- Cooperation based on trust and reliability, with knowledge and expertise for the future of Print!
- You can rely on the expertise and the excellent teamwork, allowing us to work with the highest degree of flexibility and efficiency!

The HELGRAMED RESEARCHERS for the GRAPHIC COMMUNICATION, PRINT-MEDIA and PACKAGING INDUSTRIES for drupa²⁰²⁴

In the following pages, we proudly present the **research** of twelve of our **engineers** and **researchers**.

Georgios Gamprellis

Research topic/field

Administration and Management in the Graphic Arts - Printing Industry

Contact details: 🖂 gampgeo@gmail.com



Short description

Researher

Research work spanning the entire scope of the Graphic Arts Industry. In particular, however, this concerns the study and classification of the specific characteristics of existing administrative and management concepts and systems applied in the graphic arts and electronic media industry. At the same time, a long-term identification of the requirements and needs for innovative and effective implementation of new management models has been carried out.

This research project includes, among other things, field research to study the specific characteristics of administration and management for the Graphic Arts and Electronic Media production - Lean manufacturing, MIS, JDF, quality management, web to print, etc., in order to investigate the importance of the use of the Internet for the administration and management of graphic arts and electronic media production.

The ultimate goal of this research is to propose a new management model for holistic Graphic Arts and Electronic Media production.

Short Biography

Georgios Gamprellis obtained his degree in Graphic Arts Technology (TEI of Athens) in 2003, a postgraduate degree in Graphic Arts and Multimedia (Hellenic Open University) in 2011 and a postgraduate degree in Pedagogical Studies Education (Athens Higher School of Pedagogy and Technology). Currently, he is a Ph.D. candidate at the University of West Attica.

He worked for 11 years in the printing industry and 10 years as a Lecturer at the Department of Graphic Arts Technology of Athens TEI and the University of West Attica, Greece. Since 2018, he is a permanent employee of the Hellenic National Printing Office in the Directorate of Printing and Bookbinding, Printing Sector.

He is a founding member of the Hellenic Union of Graphic Arts and Media Technology Engineers - HELGRAMED (2013) and has served as at its Board since its foundation until today. He is a founding member of the Graphic Arts Research, Development and Engineering Institute (GARDEN Institute, 2016) and a member of its Board since its foundation until today. He speaks and writes English and German.

Pinelopi Gkountara

Research topic/field

The Application of Kansei Engineering Model in Packaging Design Process

Contact details: 🖂 goundara@yahoo.gr



Short description

Kansei Engineering (KE) was developed by Mitsuo Nagamachi in 1989, and is defined as a "translating technology of a consumer's feeling and image for a product into design elements". Now more than ever, companies producing consumer goods are focusing on the personal preferences of their customers to remain competitive and establish a strong identity in the marketplace. Therefore, researchers try to capture these feelings towards a product's image in order to customize it and make it more appealing. To this end, the KE model has been applied in many industrial fields with excellent results.

Regarding packaging design process, besides the aesthetic image, there are numerous other characteristics that need to be considered so that the end product fulfils the consumer needs. After a deep analysis of the literature and a review of similar studies focusing on KE, this research aims to investigate the effectiveness of KE model throughout the packaging design process considering the latest trends in the way consumers make purchasing decisions and by taking advantage of new technological innovations.

Short Biography

Pinelopi Gkountara is a self-motivated and passionate packaging designer with a keen interest in technological innovations and consumer market trends. She graduated from the Technological Institute of Athens and then obtained a MSc degree in packaging design and marketing in HdM - Stuttgart, Germany. For the last ten years, Pinelopi Gkountara has been living in Athens, where she has gained professional experience in the packaging and printing industry. She is currently teaching packaging design at the University of West Attica (UniWA), while working on her Ph.D. thesis.

Christos Koutrouditsos

Research topic/field

CMYK Advanced Color Guide According to ISO 12647 and Further Development for ECG - Multicolor Printing

Contact details: 🖂 christos@diagramma.com.gr



Short description

The research that is currently carried out, focuses to indepth investigation on the workflow structures of Multicolor Printing – ECG (Extended Color Gamut), in comparison with the existing CMYK printing. Previous research conducted, has led to the development of an advanced CMYK color Guide, based on ISO-12647. The guide has been implemented and based on specifications derived from scientific data, incorporating all necessary elements from prepress and printing. It has a high degree of accuracy and it is compliant with Fogra 39.

The research continues with the investigation of printing workflows for ECG printing. The objective is to create an ECG printing workflow, to be used in standardization and specification with a focus on digital printing. Key element is the comprehensive analysis of the characteristics and data of extended colour gamut. The investigation will cover all processes and parameters i.e. structure and characteristics of digital color image files, prepress, inks, printing substrates, printing plates or digital data for printing, printing methods, quality control and costing.

It is expected that the research, will lead to a systematic classification of the ECG processes which can be further developed into a specification and/or standardization of the ECG printing workflow.



Advanced CMYK Color Guide for printing standardization and specification.

Short Biography

Christos Koutrouditsos is a Print-Media engineer with a degree in Graphic Arts Technology (TEI of Athens, 1990) and a postgraduate degree in Graphic Arts and Multimedia (Hellenic Open University, 2018). Currently, he is a Ph.D. candidate at the University of West Attica.

He has an experience of more than 38 years in the entire Graphic Arts and Printing sector. He is an expert in prepress, investigating the fields of reproduction for offset and silk screen printing. He is involved in research for advanced color processing and management using stochastic raster for printing more than 20 colors without moire and separations with color correction to achieve a greater color gamut.

In 1993, he founded his company "DIA-GRAMMA", being an entrepreneur ever since, with design, prepress, printing and finishing sectors. In early 2000, he started working with digital and offset printing, with emphasis on linearization procedure and the creation of look up tables (color curves) to match the job criteria. He is doing research in color printing according to ISO 12647, leading to the production of a CMYK color guide according to ISO 12647 standards, being the unique guide in Greece, with color accuracy in the digital contract proof. He is currently doing his Ph.D. at the University of West Attica.

Michail Manonas

Research topic/field

Innovative Screen-Printing Applications Involving Advanced Techniques and Materials for Security Printing on Artwork and Reproductions

Contact details: 🖂 mike_manonas@yahoo.com



Short description

The research focuses on the materials and methods used in security printing, specifically the screen-printing method, and their application to artworks and reproductions. It includes a literature review on security inks, substrates, and varnishes, as well as techniques for prepress and security features at specific stages in the printing process. This review is followed by in-depth research on security inks, security features, printing substrates and the requirements that security papers must have, and finally, special anti-copy varnishes and their part in a high-value printing are studied. The second stage of this research involves applying some of the previously stated materials and procedures to an artwork that is screen printed in several identical copies. Lastly the effectiveness of the selected materials and methods in preventing the counterfeiting of original artwork and replicas thereof, as well as the authenticity certificates that go with it are evaluated.

Short Biography

Michail Manonas graduated in 2017 from the Graphic Arts Technology Department of the Technological Educational Institute (TEI) of Athens. In 2019, his bachelor thesis on the reproduction of a Byzantine Hagiography using the method of silkscreen printing, was awarded in the international competition Fespa Printing Awards in Munich, winning the first place in the young stars category. In 2023, he completed his postgraduate studies at the Hellenic Open University with a degree in Graphic Arts and Multimedia. In the period 2014-2017 he worked in screen printing industry at "FONDO" graphic arts company and since 2018 he has been working at the Bank of Greece, in the Banknote Printing Department.

Research Team: Antonios Tsigonias, Marios Tsigonias.



Combination of different color separations in the same image. Enlargement of the point where the trichromatic separation (CMY) touches the process color separation (CMYK).



Special image processing for security printing applications: Observation in day light (left image) as compared to observation in the dark with UV light (right image).

Dr. Evgenia (Jenny) Pagani

Research topics/fields

Topic 1: Premedia Technologies – Cross-Media Publishing – Impact of the Implementation of Cross-Media Publishing in the Academic Publishing Environment

Topic 2: Children's Book Publishing – Novelty/E-books

Contact details: M jen.pag@hotmail.com, epagani@uniwa.gr



Short description

Topic 1: Premedia Technologies - Cross-Media Publishing

Cross-media technologies are a rapidly evolving field of visual communication media that is reshaping the way knowledge is transmitted through visualization, sorting, and analysis. The aim of the postdoctoral research entitled "Development and management of parallel publishing of print and electronic visual communication media: developments and applications of premedia technologies in the contemporary publishing environment of cross-media publishing. Study of the impact of the implementation of cross-media publishing in the academic publishing environment", is to document the developments in the contemporary environment of cross-media publishing, through the evaluation of modern publishing systems and their applications, in order to define possible standards and best practices for the distribution of a cross-media publication in print and electronic formats. In addition, the impact of cross-media technologies in the academic publishing environment will be identified with the purpose of enhancing their use and guided by the optimal transmission of information and comprehension.

Topic 2: Children's Book Publishing – Novelty/E-books

The Ph.D. thesis entitled "From the printed to electronic children's book: record and study of the features, modern trends and perspectives of the printed and electronic format of the children's book in the Greek publishing field (from the 1990s to the present)" [http://hdl.handle. net/10442/hedi/51371] demostrates that the materiality of the children's book has presented innumerable differences in shape, size and methods of bookbinding, as a number of novelties have enhanced the children's book with audiovisual and tactile modes. Since 2010, Greek publishers have also distributed the electronic children's book to all known file formats, posing a challenge to the printed children's book and the traditional reading of children.

Short Biography

Dr. Evgenia (Jenny) Pagani is a Postdoctoral Researcher at the Department of Graphic Design and Visual Communication of the University of West Attica (UniWA). She holds a Ph.D. in Children's Book Publishing from the Department of Pedagogy and Primary Education of the National and Kapodistrian University of Athens and a BSc degree in Graphic Arts Technology from the TEI of Athens. She also holds a Master of Arts in Publishing from the Oxford Brookes University and has won the Cambridge University Press Major Project Award for the Major Project "The Graphic Arts Pop-Up Book" (2007). She is also a member of the Hellenic Graphic-Media Research Lab - GRAPHMEDLAB (UNIWA) and Treasurer of the Hellenic Union of Graphic Arts and Media Technology Engineers - HELGRAMED. Her current research areas include pre-media technologies and cross-media publishing.



Cambridge University Press Major Project Award: spread from the Major Project "The Graphic Arts Pop-up Book", MA in Publishing, Oxford Brookes University (2007).

Eirini Pavlou

Research topics/fields

Topic 1: Development of Ceramic Luminescent Pigments Formulating by the Solutions Combustions Synthesis (SCS) Method for Special Use in Ink Applications **Topic 2:** Reproduction of Photographic and Artistic Subjects

with Mixed Photomechanical Techniques



Contact details: 🖂 eirinipav@gmail.com

Short description

Topic 1: Development of ceramic luminescent pigments formulating by the solutions combustions synthesis (SCS) method for special use in ink applications

Inorganic pigments have been known since prehistoric times and are the oldest form of pigments known to man, along with charcoal and patterns of coloured iron oxides found in prehistoric cave paintings. Modern technologies for the production of pigments can now be synthesised artificially in a laboratory environment and are classified as firing synthesis methods.

Depending on the combustion reaction mode and preparation method, a distinction is made between some methods. Some of the most well known and widely used methods of ceramic pigment synthesis, are: Self-propagation High-temperature Synthesis (SHS), Solution Combustion Synthesis (SCS), Sol-gel reaction.

Solution Combustion Synthesis (SCS) is a versatile, simple and fast process, which allows the efficient synthesis of a variety of nanomaterials. It has been used to produce various ceramic powders for a variety of advanced applications such as inks for special printing with high durability and outdoor conditions.



Topic 2: Reproduction of photographic and artistic subjects with mixed photomechanical techniques

The aim of this research project is the creation of cyanotype using mixed photomechanical techniques. The cyanotype technique, discovered by John Herschel in the 19th century, is based on the sensitivity of iron salts, iron(III) ferrocyanide - $Fe_4[Fe(CN)_6]_3$ which, on exposure to light, reduce to iron and form the characteristic blue iron compound of Prussian Blue pigment.

Short Biography

Eirini Pavlou works at the Bank of Greece, in the Banknote Printing Department. She holds a Master's degree in Graphic Arts and Multimedia from the Hellenic Open University and a bachelor degree in Graphic Arts Technology (TEI of Athens - Department of Graphic Arts and Technology). She carried out her practical work at the Laboratory of Advanced Ceramics and Composites of the Institute of Nanoscience and Nanotechnology of the NCSD Demokritos, doing research on mechanical properties of materials and then on ceramic pigments as well as on inks and the preparation of pigments by combustion methods.

Through the literature references, the revival of the cyanotype method was revived and then by making use of modern methods and techniques, the combination of printing techniques was achieved in order to evolve cyanotype into a new technique, adapted to the current printing quality standards by transferring it from an artistic method of photography to an industrialized technique of cyanotype reproduction by the method of silk screen printing.

The paper is sensitized with a solution of ferric citrate and potassium ferricyanide and then reacts when exposed to light. The aim of the emulsion, is to print it by screen printing and the improved gel composition, although a light-sensitive chemical, to function as a screen printing ink for direct printing - sensitizing the cotton paper.

Thomaida Salogianni

Research topic/field

Corporate Social Responsibility in the Greek Graphic Arts Industry

Contact details: 🖂 s_thomais@yahoo.gr



Short description

Corporate Social Responsibility (CSR) is a multifaceted concept gaining increasing attention from companies across all sectors. Research indicates its growing significance as it embodies fundamental societal principles. Interpreted diversely, CSR is applied differently across sectors but shares common principles and guidelines. Businesses, driven by interests in economic, environmental, and social efficacy, engage stakeholders like employees, consumers, and communities. While large corporations in sectors like banking and insurance commonly adopt CSR, its application in industries such as graphic arts and printing remains underexplored, particularly in Greece.

The research aims to investigate CSR practices within the Greek graphic arts and printing sector, mapping industry-specific characteristics against CSR standards. It investigates the extent of CSR adoption, its impact and potential benefits for the printing companies in Greece. Through structured questionnaires distributed among industry players, the study seeks to uncover the tangible contributions of CSR to the sector's overall performance.

Short Biography

Thomaida Salogianni is a Lecturer at a VET School with specialization in Applied and Graphic Arts in Greece, with over 20 years of lecturing experience. She hods a BSc in Graphic Arts Technology (Athens TEI) and an MSc degree in Graphic Arts and Interactive Multimedia (Hellenic Open University). She is a Ph.D. Candidate at the University of West Attica, focusing on Corporate Social Responsibility in the Greek Graphic Arts Industry. Alongside her academic pursuits, Thomaida, has been actively involved in education, design and the development of programs for social reintegration structures for imprisoned/ addicted people for over two decades.

Yiannis Sofias

Research topic/field

Human Capital Development in Digital Transformation and Sustainability Environments - The Case of the Printing Industry

Contact details: 🖂 ysofias@icloud.com, isofias@uniwa.gr



Short description

The printing industry is currently undertaking rapid structural changes, caused mainly by industry innovations, (i.e. Industry 4.0 and Industry 5.0), advanced technologies, digitalization and digital transformation, along with sustainability and circular economy settings.

Current research is investigating the transformation of the printing industry at its entire spectrum (business, technology, management and production). As such, the main research objective is to examine the role and the position of people in the sector / industry, based on the structural changes and transformations that take place. Furthermore, the research attempts to provide evidence on the structural and ongoing changes in the work and business environments, so that it reaches a concrete roadmap towards the well-being of people within the printing industry. A part of the research is to examine similar research conducted in previous decades and to compare with the current structure of the developments in the printing industry.

In the present digital era, it is questioned how people need to face the changes that take place in their work life. And it appears as a great task the way that organizations need to face this challenge.

In the research currently carried out, it is quite important to present concrete evidence in real life, in specific working areas and sectors as it regards people in the printing industry in their full dimensions. As such, all aspects of the relation of people in the sector is studied, including (among others), the structure of employment, lack of required expertise, skills gap, shortage of employment, ageing, higher education and initial and further training, learning organizations, knowledge, competences and skills.

The expected result from the present research is to describe a strategy for the Holistic development of people

Short Biography

Ioannis Sofias is a seasoned business development executive and IT systems engineer with over three decades of experience across various industries, particularly in IT and the printing sectors.

He is presently a Ph.D. candidate exploring the critical interplay between Human Capital Development and Digital Transformation in the Printing Industry. His research focuses on the transformative impact of industry innovations and sustainability practices on human capital.

Holding an Executive MBA from Athens University of Economics and Business and an MPhil in Computer Science from Royal Holloway, University of London, Mr. Sofias combines a robust academic foundation with extensive practical experience.

On the personal front, he is a devoted husband and father to three children. Passionate about sailing, music composition, and performing, Mr. Sofias leads blues/jazz bands and enjoys traveling and hiking, enriching his life with experiences that enhance his professional endeavors.

in and for the sector, or otherwise a Human Capital development – HCD strategy. This can lead to a structure and a framework, which can be further developed as a guideline for the development of Human capital within the printing industry.

Christos Trochoutsos

Research topic/field

Digital Printing – Quality Standardization and Certification

Contact details: 🖂 chtrox@pressious.com



Short description

Researher

Everybody who is familiar with graphic arts knows about ISO 12647 family of standards relating to the printing processes. For offset printing, 12647-2 specifies a number of process parameters and their values to be applied when producing four-color prints. What happens though in digital printing?

The research explores the critical aspect of quality standardization and certification in digital printing. With the proliferation of digital printing technologies across various industries, ensuring consistent and high-quality output has become paramount. The study investigates existing specifications and "standards" in digital printing, analyzing their effectiveness in guaranteeing print quality, color accuracy and durability.

Through a comprehensive review of literature and case studies, this research aims to identify gaps in current standardization practices and propose recommenda-

tions for enhancing certification frameworks. By addressing these challenges, the research contributes to the advancement of digital printing practices, fostering trust among consumers and facilitating broader adoption of digital printing technologies in diverse applications for the printing industry.



Short Biography

Christos Trochoutsos has a bachelor degree in Computer Science from University of Piraeus (2008) and a Master's degree in Graphic Arts and Multimedia from the Hellenic Open University (2013). He is working for 22 years in the printing industry as a prepress expert and IT manager. Currently, he is finalising his Ph.D. at the Hellenic Open University.

He has participated at many scientific conferences seminars and events such as the Erasmus - MediaPro Intensive Programme: Innovative Technologies in Media Production, Future Developments and Trends (Bern CH, 2012), the Print Promotion International Specialist Teachers training course in the fields of Pre-Press, Press and Post-Press in Advanced Graphic Arts (Germany 2018), and as a researcher at Fogra (Munich, 2019), within the Erasmus+ program. He became the first Fogra Digital Print Partner (2021) and Fogra **PSO partner - Process Standardization** Offset (2022) for Greece.

Antonios Tsigonias

Research topics/fields

Topic 1: Advanced Image Reproduction Using Screen Printing

Topic 2: Processing of Color Images/Artworks Using a Compilation of Pseudo-Tonic Rasterization with Uniformly Tonal Value Areas, Printed with the Appropriate Transparent Inks

Contact details: 🖂 antonio_tsigonias@yahoo.gr



Short description

Topic 1: Advanced image reproduction using screen printing

Research and application of Expanded Color Gamut - ECG by advanced reproduction techniques and special ink formulation for selected substrates. The whole process is based entirely on ISO standards for color reproduction. Applied in particular for the reproduction of an original artwork image and the avoidance of moiré phenomena that occur in polychrome halftone reproductions printing by screen printing processes.



Topic 2: Processing of color images/artworks using a compilation of pseudo-tonic rasterization with uniformly tonal value areas, printed with the appropriate transparent inks

Research is based on the processing of the appropriate values of the original image in each channel to be selected and covered with the proper uniform optical density ink, from area to area. Present research investigates whether it is feasible to reproduce a color image with only one (single) tonal value ink overlays of each separated channel of the image, in 17 different common areas of the photo-reproduction curve.



Short Biography

Antonios Tsigonias was born in 1980 in Athens where he lives and works until today. He has studied at the Department of Graphic Arts Technology of the TEI of Athens and has a Master's Degree in Graphic Arts and Multimedia from the Hellenic Open University. He is a Ph.D. candidate in Graphic Arts at the University of West Attica, focusing on the artwork reproduction by silkscreen printing.

He possesses an extensive experience at all areas of graphic arts and printing technologies since 2004 until today, in leading positions as a print media engineer and a production manager at various printing companies. He is a founding member of the social cooperative Graphic Arts Company G.A.R.D.EN. Solutions, where he works as a Production Manager.

From 2011, until today he is a Laboratory Associate of the Department of Graphic Arts Technology of the TEI of Athens, teaching the courses of Screen Printing and Large Format Printing applications, packaging and Smart Packaging application.

He has participated in photography and in screen printing exhibitions, has attended a large number of Graphic Arts workshops and has participated in international conferences with publications related to Graphic Arts, printing, marking methods and screen printing.

Dr. Marios Tsigonias

Research topics/fields

Topic 1: Degradable Biomass Packaging Films Topic 2: Energy Efficient MW Drying Topic 3: Modern Educational Needs and Skills for the Printing Industry

Contact details: 🖂 tsigonias@yahoo.gr



Short description

Topic 1: Degradable Biomass Packaging Films

Degradable polymeric films are stacked configurations composed of polymeric alloys in which various additives are homogeneously dispersed and which may modify the properties of the original polymer. In his research, Prof. Tsigonias studies the type and composition of these polymeric alloys in relation to the desired properties of the polymeric membranes in order to be used as packaging media. Particular emphasis is placed on the combined use of materials derived from starch biomass (PLA) and of marine origin (alginates) in order to achieve sustainability.

Topic 2: Energy Efficient MW Drying

Another research area of Prof. Tsigonias is the study of the drying processes of printing inks and especially the effect of microwaves as a possible energy efficient method for the drying of printed substrates. Research to date has highlighted the use of microwaves as an efficient method for all aqueous-based inks and, more generally, for inks using polar solvents.

Topic 3: Modern Educational Needs and Skills for the Printing Industry

Finally, Prof. Tsigonias explores issues related to the contemporary educational needs of the graphic arts industry. The adaptability of young workers of the printing and packaging industry in relation to the trigram codes of their personality according to J. Holland's typology and the modern characteristics of the industry as well as the exploitation of simulators in the educational process in order to develop the skills of the new comers on solving printing production problems are among his research interests.

Short Biography

Prof. Dr. Marios Tsigonias was born in 1978 in Athens, Greece where he lives and works. He has a Diploma in Graphic Arts Technology from Athens T.E.I., a MSc in Polymer Chemistry, a MEd in Pedagogical Studies and a MCounc in Academic and Career Counseling. His Ph.D. thesis is on Holistic Packaging Development and Development of Materials and Technologies for the Environmental needs of the Printing and Packaging Industry.

He has worked in the industry of Graphic Arts, as a private and public employee, as a freelancer and as a member of a cooperative enterprise (GARDEN Institute).

He has over 20 years of work in education and research in the wider Graphic Arts field. His main scientific interests are Holistic Packaging Development, Development and Characterization of Degradable Packaging Materials, new Materials and Technologies for Graphic Arts: Printing and Packaging Applications.

Since 2006 he is lecturing Printing Technology in the Graphic Arts Technology study program at the University of West Attica, as an Assistant Professor and in the MA Graphic Arts - Multimedia and a scientific collaborator of the Museum of Typography and Graphic Arts Technology (University of Ioannina). He is the Director of the Hellenic Graphic Media Research Lab (GRAPHMEDLAB - University of West Attika) and National coordinator of the EKFI Plus – Innovation through cooperation project, within the Erasmus+. He speaks and writes English and Italian.

Dr. Gerasimos Vonitsanos

Research topics/fields

Machine Learning, Big Data Analysis, Artificial Intelligence, Industry 4.0, Cloud Technologies

Contact details: 🖂 makisb@gmail.com



Short description

The integration of Machine Learning, Big Data Analysis, Artificial Intelligence, Industry 4.0, and Cloud Technologies in the Graphic Arts and Printing Industry, is revolutionizing traditional processes, being a continuous process.

Machine Learning algorithms enable predictive analytics for consumer behavior, aiding in targeted design strategies and personalized content creation. Big Data Analysis extracts valuable insights from vast amounts of visual data, informing artistic decisions and optimizing workflows. Artificial Intelligence enhances creativity through automated design generation and image recognition, while Industry 4.0 principles streamline production with smart manufacturing technologies. Cloud Technologies provide scalable storage solutions and collaborative platforms, fostering global connectivity and facilitating seamless project management. Together, these innovations propel the graphic arts industry towards unprecedented efficiency, creativity, and market responsiveness.

Short Biography

Dr. Gerasimos Vonitsanos holds a Ph.D. in Efficient Algorithms and Improved Big Data Management Techniques and their Applications in Ubiquitous Computing from the Department of Computer Engineering and Informatics of the University of Patras (CEID). He holds a Master of Science degree from the Department of Computer Science of the Ionian University. His thesis was entitled "Data Management (and Knowledge Extraction) over Spark" and is related to the field of Data Mining and Large-Scale Data Analysis. He also holds an MBA from the School of Social Sciences, HOU. Finally, he holds an MEd in the program of the School of Humanities of the HOU entitled "Education and Technologies in Distance Teaching and Learning Systems -Education Sciences".

He has published several papers in refereed scientific conferences and journals and served as program committee in various conferences. Peer-reviewer of scientific papers, books and publications of other researchers, to be published/presented at journals and conferences. He is an active member of numerous EU/research projects (Master Degree in Industry 4, EKFI - Exchange Platform for Future Intelligence, Learning, Innovation, Network and Knowledge, Upskilling school teachers for education-work transition (INSTRUCTION), Social Hackademy (#hackad), The European Software Skills Alliance (ESSA) etc.). He is also research fellow of the Graphic Media Lab (GRAPHMEDLAB).

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