

Délibération n°221209_13

Séance du Conseil d'administration du 9 décembre 2022

Nombre de membres composant le Conseil (effectif statutaire) : 28

Nombre de membres en exercice : 27

Membres présents : 15

Membres représentés : 2

Quorum : 14

Pour :

DÉCISION

AVIS

INFORMATION

Nomination du représentant de l'UTBM au Conseil de la gestion du pôle S-mart

Vu les statuts de l'UTBM ;

Vu le règlement intérieur de l'UTBM ;

Considérant que le réseau S.mart (Systems-Manufacturing-Academics-Ressources-Technologies) a pour mission de développer des moyens académiques en « Mécanique et Productique » dans une logique de mutualisation inter-établissement et que depuis une vingtaine d'années, l'UTBM a intégré ce réseau (ex. AIP-PRIMECA) au côté de l'UFC et de l'ENSMM au sein du pôle de Franche-Comté.

Considérant que pour chacun des établissements partenaires, un membre du conseil de gestion du pôle S-mart Franche-Comté est désigné pour une durée de 4 ans par son Conseil d'administration parmi les enseignants ou enseignants-chercheurs ayant une compétence reconnue dans le domaine de la productique et/ou de la conception mécanique.

Considérant que le directeur de l'UTBM a lancé un appel à candidatures le 23 septembre 2022, le mandat du représentant de l'UTBM arrivant à échéance.

Considérant que Frédéric DEMOLY, Maître de Conférences en 60^{ème} section, a présenté sa candidature (lettre de motivation et CV ci-joints).

Le Conseil d'administration

DECIDE

D'approuver la nomination de Monsieur Frédéric DEMOLY, au Conseil de la gestion du pôle S-mart

Abstention(s) : 0

Votants : 17

Blanc(s) ou nul(s) en cas de vote à bulletin secret : 0

Suffrages exprimés : 17

Pour : 16

Contre : 1

La présente délibération est adoptée.

Fait à Sevenans,

Le Directeur

Ghislain MONTAVON

Frédéric DEMOLY
Pôle Industrie 4.0
ICB UMR 6303 CNRS
Département CO2M
UTBM – Site de Sevenans

M. le Directeur de l'UTBM
Ghislain MONTAVON

Le 9 novembre 2022

Objet : Candidature à la co-direction du Pôle S.mart Franche-Comté.

Monsieur le Directeur,

Par la présente, je vous annonce mon souhait de candidater à la co-direction du Pôle S.mart Franche-Comté et de représenter mon établissement au conseil de gestion de celui-ci.

Nommé dans le corps des Professeur des Universités en section CNU 60 depuis septembre 2021, mes activités de recherche et d'enseignement s'inscrivent intégralement dans le domaine de la conception intégrée de systèmes mécaniques par la prise en compte des métiers de l'assemblage, la fabrication additive et l'impression 4D.

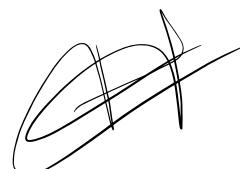
Cette candidature pour cette responsabilité se veut donc cohérente vis-à-vis du domaine dans lequel j'exerce mes activités et me permettrait de maintenir les efforts engagés avec le Pôle (mandats 2014-2018 et 2018-2022). Ils concernent notamment mon implication dans la politique d'investissement (2017-2022) pour le développement de la plateforme satellite orientée « conception et prototypage » à Sevenans et ma position au conseil scientifique national de S.mart.

Dans un contexte plus local et cohérent avec les ambitions du projet SYNERGIE de l'UTBM, je me suis engagé à étendre les actions du Pôle – principalement ciblées sur l'enseignement – vers la recherche. Le réseau national a également un rôle de levier pour amorcer des projets de recherche autour de plateformes technologiques.

En vous souhaitant bonne réception, je vous prie d'agréer, Monsieur le Directeur, l'expression de mes sincères salutations.

Frédéric DEMOLY

P.j. : Curriculum Vitæ.



Frédéric Demoly

Full Professor, Ph.D.

ICB UMR 6303, CNRS, UTBM
90010 Belfort Cedex, France
✉ +33 (0)6 08 15 53 54
✉ +33 (0)3 84 58 39 55
✉ frederic.demoly@utbm.fr
✉ frédéric.demoly
04/26/1983 (39 years old)



Research Interests

Product Design – Advanced Computer Aided Design – Multi-Material Additive Manufacturing – 4D printing – Smart materials – Artificial intelligence.

Professional Experience

- 2021 to present **Full Professor**, ICB UMR 6303, CNRS, Belfort-Montbeliard University of Technology, UTBM, France.
- 2022 to present **Head of Design, Optimization, and Mechanical Modeling Department**, ICB UMR 6303, CNRS, 30 persons.
- 2014 to present **Deputy-Director**, S.mart academic Society, Franche-Comté.
- 2011 to 2021 **Associate Professor**, ICB UMR 6303, CNRS, UTBM, France.
- 2012 to present **Head of Product Design and Development Branch**, Mechanical Engineering and Design Department, UTBM.
- 2010–2011 **Postdoctoral Researcher**, EPFL, Lab for CAD/CAM, Lausanne, Switzerland.
- 2007–2010 **Research Assistant**, UTBM IRTES-M3M, France.

Education

- 2019 **Research Habilitation**, UTBM, *Proactive integration of manufacturing processes in design and formalization of related spatiotemporal knowledge: Application to assembly and 4D printing*.
- 2010 **Ph.D. in Mechanical Engineering**, UTBM, *Integrated Design and PLM: Application to product and its assembly sequence*.
supervisors Prof. Samuel Gomes and Prof. Benoît Eynard.
- 2007 **Engineer Diploma in Mechanical Engineering**, UTBM.

Selected Research Projects

- 2022 to 2029 **PIA ARTEMIS**, Accelerated discovery and development of smart materials and structures with 4D printing technologies, Principal Investigator, UTBM, Funding: 1.5 M€.
- 2021 to 2022 **Pre-maturation CNRS GenIsis**, Hybrid 4D printing technology, Principal Investigator, UTBM, Funding: 136 k€.
- 2021 to 2023 **ISITE BFC PIA 4D-META**, 4D printing and artificial materials, Principal Investigator, UTBM, Funding: 315 k€.
- 2021 to 2023 **PIA EUR-EIPHI LYRA**, Integrated design and process planning strategies for transformable products by 4D printing, Principal Investigator, UTBM, Funding: 100 k€.

- 2018 to 2011 **ISITE BFC PIA HERMES**, *Spatiotemporal semantics and logical knowledge description of mechanical objects in the era of 4D printing and programmable matter for next-generation of CAD systems*, Principal Investigator, UTBM, Funding: 150 k€.
- 2019 to 2021 **National BFC Region PAN**, *Proactive design and geometric representation of transformable and active structures by 4D printing*, Principal Investigator, UTBM, Funding: 333 k€.
- 2011 to 2014 **National Cluster INGEPROD**, *High Productive Product-Process Design*, Technical coordinator, UTBM, Funding: 400 k€.
- 2010 to present **FP7-FoF-ICT PLANTCockpit**, *Production Logistics and Sustainability Cockpit*, Work Package Leader, EPFL, Funding: 480 k€.
- 2011 to present **FP7-FoF-ICT LinkedDesign**, *Linked Knowledge in Manufacturing, Engineering and Design for Next-Generation Production*, Proposal editing, EPFL, Funding: 492 k€.
- 2006-2009 **National Cluster CoDeKF**, *Collaborative Design and Knowledge Factory*, Technical coordinator, UTBM, Funding: 730 k€.

Services in International and National Research Activities International

- Editorial Member of the Smart Manufacturing Journal since 2021.
- Board Member of the Frontiers in Manufacturing Technology Journal since 2021.
Member of Journal of Integrated Design and Process Science (JIDPS) since 2017.
Member of Journal of Machinery Manufacturing and Automation (JMMA) since 2013
- Scientific Committee Member of the Scientific Committee of the 4D Materials Design and Additive Manufacturing (4DMDA) conference since 2022.
Member of the Scientific Committee of the International Conference of Product Lifecycle Management (PLM) since 2012.
Member of the Scientific Committee of the CIRP Design Conference since 2018.
Member of the Scientific Committee of the Advances in Production Management Systems conference since 2012.
Member of the Scientific Committee for the Colloque Sur les Sciences de la Conception et de l'Innovation (CONFERE) since 2012.
- Reviewer for Journals Nature Scientific Reports, Additive Manufacturing, Virtual and Physical Prototyping, Archive in Mechanical Engineering, Part C: Journal of Mechanical Engineering Science, Additive Manufacturing, Integrated Computer-Aided Engineering (ICAE), Computer-Aided Design (CAD), Robotics and Computer-Integrated Manufacturing (RCIM), Advanced Engineering Informatics (ADVEI), Journal of Engineering Design (JED), Journal of Intelligent Manufacturing (JIM), Production Planning & Control, Co-Design, CIRP-Journal of Manufacturing Science and Technology (CIRP-JMST), Concurrent Engineering: Research and Application (CERA), International Journal of Product Lifecycle Management (IJPLM), International Journal Of Design and Innovation Research (IJODIR).
- Reviewer for Conferences 4DMDA, CIRP Design, ASME International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE), Tools and Method for Competitive Engineering (TMCE), Product Lifecycle Management (PLM), ASME Biennial Conference on Engineering Systems Design and Analysis (ESDA), CONFERE.
- Session chair WCCM 2020, "Modeling, Simulation and Optimization of Functional Materials and Additive Manufacturing" in collaboration with Dr. Bodaghi (Nottingham Trent University, Dr. Giulia Scalet (University of Pavia), Dr. Ali Zolfagharian (Deakin University).

	TMCE 2016, "Application of generative models" in collaboration with Prof. Horvath (TU Delft).
	APMS 2014, "Lean System Development" in collaboration with Dr. Elise Vareilles (ENSMAC) and Dr. Nguyen Dang (Faculty of Business Administration, Vietnam).
	PLM12, "Increasing awareness and understanding of information and knowledge flows in PLM" in collaboration with Dr. Dimitris Kiritsis (EPFL).
	ESDA 2012, "PLM & Integration of Manufacturing Information" in collaboration with Prof. Benoît Eynard (UTC).
	ESDA 2012, "Information Management & Lifecycle Engineering" in collaboration with Prof. Benoît Eynard (UTC).
Organizer	CoDeKF09, International Workshop on Collaborative Design and Knowledge Factory, November, 2009, Montbéliard, France.
	APMS 2014, International Conference on Advances in Production Management Systems, September 20-24, 2014, Ajaccio, Corsica, France.
	PALM 2015, International Workshop on Product and Assets Lifecycle Management, 2015, France.
	AIP Primeca 2015, National Workshop, 2015, La Plagne, France.
	National
Chair	GDR MACS, IS3C (IngéFutur) Technical Group (CNRS), 2014-2016.
Evaluator	The French National Research Agency (ANR), Digital Models (2013), Industrial revival (2015 et 2016), Factory of the Future (2018, 2019), ERA-NET CHIST-ERA (2018), LabCom V3 (2018), Résilience Hauts-de-France (2020), Italian Ministry of University and Research(2022), Europe's Rail (2022).
Selection committee	Associate Professor, 4085 MCF 60, Pole Industrie 4.0, ICB UMR 6303 CNRS, UTBM, 2022 (President of the committee). Full Professor, 4155 PR 60/61, Département Génie des Systèmes Mécaniques, Roberval, UTC, 2014. Associate Professor, 0303 MCF 60/61, Département Génie des Systèmes Mécaniques, Roberval, UTC, 2022. Full Professor, 0460 PR 60, LCP, ENSAM Paris, 2022. Associate Professor, 0303 MCF 60/61, Département Génie des Systèmes Mécaniques, Roberval, UTC, 2022. Associate Professor, 4404 MCF 60/61, Département GMC/EDIM, ICB UMR 6303 CNRS, UTBM, 2017. Associate Professor, 0697 MCF 60, G-SCOP UMR 5272 CNRS, Institut National Polytechnique de Grenoble, 2018. Associate Professor, 4184 MCF 60, I2M UMR CNRS 5295, Arts et Métiers ParisTech ENSAM Bordeaux, 2018. Associate Professor, 4197 MCF 60, LISPEM EA 7515, Arts et Métiers ParisTech ENSAM Aix-en-Provence, 2019. Associate Professor, 4216 MCF 60, LISPEM EA 7515, Arts et Métiers ParisTech ENSAM Cluny, 2021.
Ph.D. committee	Damiano Nunzio ARENA, "Towards semantics-driven modelling and simulation of context-aware manufacturing systems", EPFL, 2019.

- Atul MISHRA, "Intelligent Computer-Aided Assembly Planning Methodologies for Mechanical Product Assembly Sequence Optimization and Robot Task Plan Generation", IIT Kharagpur, India, 2019.
- Anthony GEROMIN, "Synthèse des connaissances métiers pour l'émergence du modèle géométrique : Application à la conception d'arbre de transmission de puissance mécanique", ENSAM Aix-en-Provence, 2019.
- Paul Leonard STIEF, "Contribution à la co-conception de produits et de leurs systèmes de production reconfigurables", ENSAM Metz, 2020.
- Ameni ELTAIEF, "Modèle de réconciliation des associations et propagation des modifications au sein d'une maquette numérique", UTT, 2020.
- Nellie DELLA SCHIAVA, "Development of Electrostrictive P(VDF-TrFE- CTFE) Terpolymer for Medical Applications", INSA Lyon, 2020.
- Ziyin XIANG, "Enhancing low-frequency induction heating effect of ferromagnetic composites – towards medical applications", INSA Lyon, 2021.
- Christophe KOLLROS, "Comment donner aux PME les moyens de réussir un passage structuré à l'Industrie 4.0", INPG, 2021.
- Stéphane NZETCHOU, "Méthodologie d'enrichissement sémantique de modèles CAO dans un environnement de continuité numérique", UTC, 2021.
- Armand LANG, "Méthodologie d'intégration de la fabrication additive comme source de créativité pour l'industrie manufacturière", ENSAM Paris, 2021.
- Xiaoting ZHANG, "Characterization and structuration of piezoelectric ZnO-based composites: Toward medical applications", LGEF, INSA Lyon, 2022.
- Research Thomas PAVIOT, "Contribution to the modeling and control of engineering systems",
 Habil. Université Polytechnique Haut-de-France, 2022.
 committee

Services in UTBM/ICB

- Member Laboratory Board of ICB UMR 6303 CNRS, Elected period: 2022-2027.
- Member Administration Board of UTBM, Elected period: 2012-2016.
- Member Scientific Board of UTBM, Elected period: 2016-2020.
- Member Scientific Board of ICB UMR 6303 CNRS, Elected period: 2016-2020.
- Member Laboratory Board of IRTES-M3M, Elected period: 2014-2018.
- Member Department Board of GMC, Elected period: 2014-2018.
- Head Product Design and Development Branch.
- Head Product Lifecycle Management and Design for X Course: 90 students a year.

Memberships

International

- 4D Printing Founding Member of the 4D Printing Society, Since 2021.
- DS Member of the Design Society, Since 2009.
- IFIP 5.1 Junior Member of the International Federation of Information Processing, Since 2013
 Working Group 5.1: Global Product development for the whole life-cycle
- IFIP 5.7 Senior Member of the International Federation of Information Processing, Since 2013
 Working Group 5.7: Advances in Production Management Systems

National

- GDR MACS Chair of the French IS3C (IngéFutur) Working Group, Since 2014.
S.mart Member of the French S.mart academic Society, Since 2007.

Honors

- PEDR Holder of a Bonus for Scientific Excellence (2021-2025).
PEDR Holder of a Bonus for Scientific Excellence (2017-2021).
PES Holder of a Bonus for Scientific Excellence (2013-2017).
Paper Top 10% Best Reviewed Papers ICED 2017, Vancouver, BC, Canada.
Paper Best Paper for the Fourth Gaheon Academic Award for Journal of Computational Design and Engineering, 2019, Penang, Malaysia.
Paper Second Best Paper Award of the International Conference on Product Lifecycle Management, PLM 2012, Montréal, Canada
CNU Qualification in Sections 60 and 61 of the CNU, 2011.

Publications

International books

Demoly F., André J.-C. 4D Printing 1: Between disruptive research and industrial application. Wiley/ISTE Science Publishing, London, UK, 2022, 368p.

Demoly F., André J.-C. 4D Printing 1: Between science and technology. Wiley/ISTE Science Publishing, London, UK, 2022, 320p.

International Refereed (peer reviewed) Journals

Athinarayanaarao D., Prod'hon R., Chamoret D., Qi H.J., Bodaghi M., André J.C., **Demoly F.** Computational design for 4D printing of topology optimized multi-material active composites through finite element analysis and evolutionary algorithm. *npj Computational Materials*, under review, 2022.

Macrae Montgomery S., **Demoly F.**, Zhou K., Qi H.J. Pixel-level grayscale manipulation to improve accuracy in digital light processing 3D printing. *International Journal of Extreme Manufacturing*, under review, 2022.

de Kergariou C., **Demoly F.**, Perriman A., Le Duigou A., Scarpa F. The design of 4D printed hygromorphs: state-of-the-art and future challenges. *Advanced Functional Materials*, under review, 2022.

Dimassi S., **Demoly F.**, Belkebir H., Cruz C., Kim K.Y., Gomes S., Qi H.J., André J.C. A knowledge recommendation approach in design for multi-material 4D printing based on semantic similarity vector space model and case-based reasoning. *Computers in Industry*, under review, 2022.

Benyahia K., Seriket H., Prod'hon R., Gomes S., André J.C., Qi H.J., **Demoly F.** A computational design approach for multi-material 4D printing based on interlocking blocks assembly. *Additive Manufacturing*, 2022, 58, 102993.

Peng X., Wu S., Sun X., Yue L., Macrae Montgomery S., **Demoly F.**, Zhou K., Zhao R.R., Qi H.J. 4D printing of freestanding liquid crystal elastomers via hybrid additive manufacturing. *Advanced Materials*, 2022, 34(39), 2204890.

Armstrong C.D., Yue L., **Demoly F.**, Zhou K., Qi H.J. Unstructured direct ink write 3D printing of functional structures with ambient temperature curing dual-network thermoset ink. *Advanced Intelligent Systems*, 2022, 2200226.

- Roach D.J., Yue L., Yu L., Shao H., Peng X., **Demoly F.**, Zhou K., Qi H.J. 4D printed multifunctional composites with cooling-rate mediated tunable shape morphing. *Advanced Functional Materials*, 2022, 32(36), 2203236.
- Sossou G., **Demoly F.**, Gomes S., Montavon G. An assembly-oriented design framework for additive manufacturing. *Designs*, 2022, 6(1), 20.
- Cadiou T., **Demoly F.**, Gomes S. A multi-part production planning framework for additive manufacturing of unrelated parallel fused filament fabrication 3D printers. *Designs*, 2022, 6(1), 11.
- Jian B., **Demoly F.**, Zhang Y., Qi H.J., André J.C., Gomes S. Origami-based design for 4D printing of 3D support-free hollow structures. *Engineering*, 2022, 12, 70-82.
- Khalil M., Belkebir H., Lebaal N., **Demoly F.**, Roth S. A biomimetic design method for 3D-printed lightweight structures using L-systems and parametric optimization. *Applied Sciences*, 2022, 12(11), 5530.
- Sun X., Yue L., Yu L., Shao H., Peng X., Zhou K., **Demoly F.**, Zhao R., Qi H.J. Machine Learning-Evolutionary Algorithm Enabled Design for 4D-Printed Active Composite Structures. *Advanced Functional Materials*, 2022, 32(10), 2109805.
- Demoly F.**, Dunn M.L., Wood K.L., Qi H.J., André J.C. The status, barriers, challenges, and future in design for 4D printing. *Materials & Design*, 2021, 212, 110193.
- Cadiou T., **Demoly F.**, Gomes S. A hybrid additive manufacturing platform based on fused filament fabrication and direct ink writing techniques for multi-material 3D printing. *International Journal of Advanced Manufacturing Technology*, 2021, 1-12.
- Al Khalil M., Lebaal N., **Demoly F.**, Roth S. A design and optimization framework of variable-density lattice structures for additive manufacturing. *Mechanics of Advanced Materials and Structures*, 2021, 1-15.
- Dimassi S., **Demoly F.**, Cruz C., Qi H.J., Kim K.Y., André J.C., Gomes S. An ontology-based framework to formalize and represent 4D printing knowledge in design. *Computers in Industry*, 2021, 126, 103374.
- Demoly F.**, André. Is order creation through disorder in additive manufacturing possible? *Cogent Engineering*, 2021, 8(1), 1889110.
- Roucoules L., **Demoly F.**, Multi-scale and multi-representation CAD models reconciliation for knowledge synthesis. *CIRP Annals*, 2020, 69 (1), 137-140.
- Demoly F.**, André J.C. Research strategy in 4D printing: Disruptive vs incremental?. *Journal of Integrated Design and Process Science*, 2020, 24(2), 53-73.
- Lebaal N., Zhang Y., **Demoly F.**, Roth S., Gomes S., Bernard A. Optimised lattice structure configuration for additive manufacturing. *CIRP Annals*, 2019, 68(1):117-120.
- Al-Khalil M., Frissane H., Taddei L., Meng S., Lebaal N., **Demoly F.**, Bir C., Roth S., SPH-based method to simulate penetrating impact mechanics into ballistic gelatin: Toward an understanding of the performance of human tissue. *Extreme Mechanics Letters*, 2019, 29, 100479.
- Demoly F.**, Kim K.-Y., Horvath I. Deriving models based on ontologies for supporting engineering design. *Journal of Engineering Design*, 2019, DOI: 10.1080/09544828.2019.1633626.
- Sossou G., **Demoly F.**, Belkebir H., Qi H.J., Montavon G., Gomes S. Design for 4D printing: Modeling and computation of smart materials distributions. *Materials & Design*, 2019, 181, 108074.
- Sossou G., **Demoly F.**, Belkebir H., Qi H.J., Montavon G., Gomes S. Design for 4D printing: A voxel-based modeling and simulation of smart materials. *Materials & Design*, 2019, 175, 107798.

- Hamel C.M., Roach D.J., Long K.N., **Demoly F.**, Dunn M.L., Qi H.J. Machine-learning based design of active composites for 4D printing. *Smart Materials and Structures*, 2019, 28, 065005.
- Sossou G., **Demoly F.**, Montavon G., Gomes S. An additive manufacturing oriented design approach to mechanical assemblies, *Journal of Computational Design and Engineering*, 2018, 5(1), 3-18.
- Demoly F.**, Roth S. Knowledge-based parametric CAD models of configurable biomechanical structures using geometric skeletons, *Computers in Industry*, 2017, 92-93, 104-117.
- Marconnet B., **Demoly F.**, Monticolo D., Gomes S. An assembly oriented design and optimization approach for mechatronic system engineering, *International Journal for Simulation and Multidisciplinary Design Optimization*, 2017, 8, A7, 10p.
- Khan M.T.H., **Demoly F.**, Kim K.-Y. Formal ontology and CAD integration with macro parametric approach, *Computer-Aided Design and Applications*, 2017, 14, 24-32.
- Gruhier E., **Demoly F.**, Gomes S. A spatiotemporal information management framework for product design and assembly process planning reconciliation, *Computers in Industry*, 2017, 90, 17-41.
- Gruhier E., **Demoly F.**, Kim K.-Y., Abouddi S., Gomes S. A theoretical framework for product relationships description over space and time in integrated design, *Journal of Engineering Design*, 2016, 27(4-6), 269-305.
- Gruhier E., **Demoly F.**, Abouddi S., Gomes S., A formal ontology-based spatiotemporal mereotopology for integrated product design and assembly sequence planning, *Advanced Engineering Informatics*, 2015, 29(3), 495-512.
- Demoly F.**, Dutartre O., Yan X.-T., Eynard B., Kiritsis D., Gomes S. Product relationships management enabler for concurrent engineering and PLM, *Computers in Industry*, 2013, 64(7), 833-848.
- Demoly F.**, Matsokis A., Kiritsis D. A mereotopological product relationship description approach for assembly oriented design, *Robotics and Computer-Integrated Manufacturing*, 2012, 28(1), 681-693.
- Demoly F.**, Yan X.-T., Eynard B., Kiritsis D., Gomes S. Integrated product relationships management : a model to enable concurrent product design and assembly sequence planning, *Journal of Engineering Design*, 2012, 23(7), 544-561.
- Monticolo D., Lahoud I., Bonjour E., **Demoly F.**, SemKnow : A multi-agent platform to manage distributed knowledge by using ontologies, *Lecture Notes in Engineering and Computer Science*, 2012, 2195(1), 58-62.
- Demoly F.**, Toussaint L., Eynard B., Kiritsis D., Gomes S. Geometric skeleton computation enabling concurrent product engineering and assembly sequence planning, *Computer-Aided Design*, 2011, 43(12), 1654-1673.
- Demoly F.**, Troussier N., Eynard B., Falgarone H., Fricero B., Gomes S. Proactive assembly oriented design approach based on the deployment of functional requirements, *Journal of Computing Information and Science in Engineering*, 2011, 11(1): 014501.
- Demoly F.**, Yan X.-T., Eynard B., Rivest L., Gomes S. An Assembly oriented design framework for product structure engineering and assembly sequence planning, *Robotics and Computer-Integrated Manufacturing*, 2011, 27(1), 33-46.
- Demoly F.**, Monticolo D., Eynard B., Rivest L., Gomes S. Multiple viewpoint modelling framework enabling integrated product-process design, *International Journal of Interactive Design and Manufacturing*, 2010, 4(4), 269-280.

Demoly F., Eynard B., Rivest L., Gomes S. PLM-based approach for assembly process engineering, *International Journal of Manufacturing Research*, 2010, 5(4), 414-428.

Toussaint L., **Demoly F.**, Lebaal N., Gomes S. PLM-based approach for design verification and validation using manufacturing process knowledge, *Journal of Systemics, Cybernetics and Informatics*, 2010, 8(1), 1-7.

Book chapters

Demoly F., André J.C. Roadmapping 4D printing through disruptive ideas, *Smart materials in additive manufacturing, Volume 1: 4D printing principles and fabrication*. Eds. Bodaghi M., Zolfagharian A., Elsevier, 419-455.

Sossou G., Belkebir H., **Demoly F.**. Multimaterial 4D printing simulation using a grasshopper plugin, *Smart materials in additive manufacturing, Volume 2: 4D printing mechanics, modeling, and advanced engineering applications*. Eds. Bodaghi M., Zolfagharian A., Elsevier, 329-345.

Demoly F., Deniaud S., Gomes S. Towards an harmonious and integrated management approach for lifecycle planning, *Competitive Manufacturing for Innovative Products and Services : Proceedings of the APMS 2012 Conference, Advances in Production Management Systems*. Eds. Emmanouilidis C., Taisch M., and Kiritsis D., IFIP AICT, Springer.

Demoly F., Matsokis A., Kiritsis D., Gomes S., Mereotopological description of product-process information and knowledge for PLM, In Rivest L., Bouras A., Louhichi B. (Eds.), *PLM : Towards Knowledge-Rich Enterprises*, Springer London, 2012.

Gomes S., **Demoly F.**, Mahdjoub M., Sagot J.-C., Integration of Design for Assembly into a PLM environment, In Yan X.-T., Eynard B., Ion W.J. (Eds.), *Global Design to Gain a Competitive Edge D An Holistic and Collaborative Design Approach based on Computational Tools*, Springer London, ISBN 978-1-84800-238-8, 2008, pp. 117-126.

International Conferences

Dimassi S., **Demoly F.**, Cruz C., Gomes S. From dispersed knowledge to ontology: A proposal for formalising and integrating 4D printing in design *IFIP International Conference on Product Lifecycle Management*, 2021, 11-14 July, Curitiba, Brazil, 80-95

Jian B., **Demoly F.**, Zhang Y. and Gomes S., An origami-based design approach to self-reconfigurable structures using 4D printing technology. *Procedia CIRP*, 2019, 84:59-164.

Sossou G., **Demoly F.**, Montavon G., Gomes S., Design for 4D printing: rapidly exploring the design space around smart materials, *Procedia CIRP*, 2018, 70:120-125.

Jian B., **Demoly F.**, Zhang Y., Gomes S., A design framework for multifunctional shape memory polymer by 4D printing, ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS), 2018, September 10-12, San Antonio, TX, USA.

Sossou G., **Demoly F.**, Montavon G., Gomes S., Towards a framework for 4D printing-oriented design. DS 87-5 Proceedings of the 21st International Conference on Engineering Design (ICED 17) Vol 5 : Design for X, Design to X, Vancouver, BC, Canada, August, 21-25, 2017.

Gruhier E., Kromer R., **Demoly F.**, Perry N., Gomes S., Transformable product formal definition with its implementation in CAD tools. International Conference on Product Lifecycle Management, PLM 2017, July 9-12, Seville, Spain.

Marconnet B., Wetzel A., Leprince-Maillere G., **Demoly F.**, Monticolo D., Gomes S., Optimization and design for manufacturing and assembly of mechatronic systems : Application to an innovative concept of ?Follow me drone?. International Conference on Multidisciplinary Design Optimization and Application, ASMDO 2016, June 26-30, Shenzhen, China.

Khan M.T.H., **Demoly F.**, Kim K.-Y., Dynamic design intents capture with formal ontology and perdurants object concept. International Conference on Collaboration Technologies and Systems, CTS 2016, June 6-10, Orlando, Florida, USA.

Sossou G., **Demoly F.**, Montavon G., Gomes S., Towards an approach to additive manufacturing oriented design. Tools and Methods of Competitive Engineering, TMCE 2016, Aix-en-Provence, France.

Marconnet B., **Demoly F.**, Monticolo D., Gomes S., Towards an approach to link knowledge and prediction in product design. International Conference on Product Lifecycle Management, PLM15, 19-21 October 2015, Doha, Qatar.

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Robert A., **Demoly F.**, Roth S. and Gomes S., Conception et simulation multi-physique de produits modulaires, 17^{ème} Séminaire CONFERE (Collège d'Etudes et de Recherches en Design et Conception de Produits) sur l'Innovation et la Conception, Sousse, Tunisie, 1-2 Juillet 2010.

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Al Khalil M., **Demoly F.**, Lebaal N. and Roth S., Vers une approche intégrée de conception-simulation-optimisation de structures lattices, 16^{ème} Colloque National S.mart, Les Karellis, 3-5 avril 2019.

Sossou G., **Demoly F.**, Montavon G. and Gomes S., Conception pour l'impression 4D – Modélisation à base de voxels et simulation du comportement des matériaux intelligents, 16^{ème} Colloque National S.mart, Les Karellis, 3-5 avril 2019.

French Patents

Demoly F., André J.C., Prod'hon R. Objet ou structure multi-matériaux transformable à base de matériaux actifs et procédé d'impression 4D par assemblage volumique. Demande de brevet français, FR2204779, 19/05/2022.

Demoly F., André J.C., Prod'hon R. Procédé d'encapsulation de matériaux actifs et passifs par enveloppe externe fonctionnelle ou passive. Déclaration d'Invention CNRS, 16337-2, 24/10/2022.

Current PhD Students (4)

- | | |
|-----------------|---|
| 2020 to present | Kheira BENYAHIA, <i>Hybrid voxels 4D printing based on topologically interlocked multi-material assembly</i> , Funded by EUR EIPHI, UTBM. |
| 2018 to present | Monzer AL-KHALIL, <i>Generative design and optimization of bio-inspired lattice structures in additive manufacturing</i> , Funded by the Ministry of Research and High Education, UTBM. |
| 2019 to present | Hadrien BELKEBIR, <i>Computational design synthesis for 4D printing</i> , Funded by Region BFC, UTBM. |
| 2018 to present | Lucas JIMENEZ, <i>Artificial intelligence and decision support for modular robots design</i> , Industrial PhD funded by MS-INNOV, UTBM. |

Student Advised (8)

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|--------------|---|
| 2021 to 2022 | Laura DELCUSE, <i>Shape-changing mechanical metamaterials</i> , Postdoc, UTBM. |
| 2018 to 2022 | Sauussen DIMASSI, <i>Knowledge formalization and recommendation in computational design synthesis for 4D printing</i> , UTBM. |
| 2018 to 2021 | Thibaut CADIOU, <i>Conception et fabrication additive de pièces plastiques de grand format pour l'industrie</i> , UTBM. |
| 2017 to 2020 | Bingcong JIAN, <i>Origami-based design for 4D printing of deployable structures</i> , UTBM. |
| 2015 to 2019 | Germain SOSSOU, <i>A holisitical approach to design for 4D printing</i> , UTBM. |
| 2014 to 2017 | Bertrand MARCONNET, <i>Contexte augmenté basé sur les prédictions pour une réutilisation efficace des connaissances métier en conception</i> , Industrial PhD, ACCELINN, UTBM. |
| 2012-2015 | Élise GRUHIER, <i>Spatio-temporal description and modeling of mechanical products and their lifecycle sequences based on mereotopology: Theory, model and approach</i> , UTBM. |
| 2011 | Joaquim PUIG RAMIREZ, <i>Asset optimization and predictive maintenance in discrete manufacturing industry</i> , Master Thesis, EPFL, with Dr. Dimitris Kiritsis, ERASMUS program. |

Courses instructed

- Product Lifecycle Management.
- Product Data Management.
- Engineering Change Management.
- Geometric modeling in PLM.
- Manufacturing Process Management.
- Design for Manufacturing and Assembly.
- Design for Additive Manufacturing.
- Assembly Sequence Planning.
- Formal semantics in PLM
- Knowledge-based Engineering

- Advanced CAD
- 4D printing technologies
- Design for 4D printing
- Advanced additive manufacturing