

# ALESSANDRO BERTONI

Vildvinsvägen 10, 37237, Ronneby, Sweden · +46 730936555

[alebtoni85@gmail.com](mailto:alebtoni85@gmail.com) · <https://www.linkedin.com/in/alessandrobtoni/> ·

ORCID: 0000-0001-5114-4811

## EXPERIENCE

### DATES FROM JULY 2020 TO NOW

#### **BITRÄDANDE PROFESSOR**, BLEKINGE INSTITUTE OF TECHNOLOGY (SWEDEN)

Department of Mechanical Engineering.

- Research focus on Data-Driven Design and Product Service Systems Innovation.
- Deputy representative of the Department of Mechanical Engineering in the University Recruitment Committee

### DATES FROM DECEMBER 2019 TO JUNE 2020

#### **DOCENT**, BLEKINGE INSTITUTE OF TECHNOLOGY (SWEDEN)

Department of Mechanical Engineering.

- Research focus on Data-Driven Design and Product Service Systems Innovation.
- Deputy representative of the Department of Mechanical Engineering in the University Recruitment Committee

### DATES FROM NOVEMBER 2016 TO DECEMBER 2019

#### **SENIOR LECTURER**, BLEKINGE INSTITUTE OF TECHNOLOGY (SWEDEN)

Department of Mechanical Engineering.

- Research focus on Data-Driven Design and Product Service Systems Innovation.
- Deputy representative of the Department of Mechanical Engineering in the University Recruitment Committee from September 2018.

### OCTOBER 2016

#### **VISITING LECTURER**, CHINA JILIANG UNIVERSITY, HANGZHOU (CHINA)

Department of Art and Communication.

- Lecturing and moderating a workshop on Product Service Systems Innovation for elderly

### DATES FROM NOVEMBER 2014 TO OCTOBER 2016

#### **POST DOCTORAL RESEARCH FELLOW**, BLEKINGE INSTITUTE OF TECHNOLOGY (SWEDEN)

Department of Mechanical Engineering.

- Research focus on Vale-Driven Design, Systems Engineering, and Product Service Systems Innovation.

### DATES FROM FEBRUARY 2014 TO OCTOBER 2014

#### **PROJECT LEADER**, BLEKINGE INSTITUTE OF TECHNOLOGY (SWEDEN)

Department of Mechanical Engineering.

- Research focus on Vale-Driven Design, Systems Engineering, and Product Service Systems Innovation.

### DATES FROM MAY 2010 TO DECEMBER 2013

#### **DOCTORAL STUDENT**, LULEÅ UNIVERSITY OF TECHNOLOGY (SWEDEN)

Department of Mechanical Engineering.

- Research focus on Vale-Driven Design and Product Service Systems Innovation.

### DATES FROM JANUARY 2010 TO APRIL 2010

#### **GENERAL DIRECTOR ASSISTANT**, SETCO, CLUSONE (ITALY)

- Small-medium company providing environmental services.

### DATES FROM OCTOBER 2008 TO APRIL 2009

#### **TRAINEE**, LMS INTERNATIONAL, LEUVEN (BELGIUM)

- Process mapping and process re-engineering.

## EDUCATION

**DECEMBER 2013**

**DOCTORAL DEGREE IN PRODUCT INNOVATION, LULEÅ UNIVERSITY OF TECHNOLOGY (SWEDEN)**

Thesis titled: "Value-Driven Design – a methodology for value-oriented decision making in preliminary design".

Supervisors: Prof Tobias Larsson (now at Blekinge Institute of Technology), Prof. Åsa Ericsson (Luleå University of Technology), Prof. Ola Isaksson (now Chalmers University of Technology), Ph.D Christian Johansson (now at Blekinge Institute of Technology)

**MARCH 2012**

**LICENTIATE DEGREE IN FUNCTIONAL PRODUCT DEVELOPMENT, LULEÅ UNIVERSITY OF TECHNOLOGY (SWEDEN)**

Thesis title: "Value assessment capabilities in early PSS development: A study in the aerospace industry"

Supervisors: Prof Tobias Larsson (now at Blekinge Institute of Technology), Prof. Ola Isaksson (now Chalmers University of Technology).

**SEPTEMBER 2009**

**MASTER DEGREE IN MANAGEMENT ENGINEERING, UNIVERSITY OF BERGAMO**

Thesis title: "Best practices per la gestione della conoscenza e della attività nel processo di sviluppo prodotto: il caso LMS International"

Supervisors: Prof Caterina Rizzi (University of Bergamo).

**JULY 2017**

**BACHELOR DEGREE IN MANAGEMENT ENGINEERING, UNIVERSITY OF BERGAMO**

Thesis title: "Trasporto aereo e intermodalità nelle principali aree metropolitane europee"

Supervisors: Prof Lucio Cassia (University of Bergamo).

## LANGUAGE SKILLS

- Italian: mother tongue
- English: Full professional proficiency
- Swedish: Full professional proficiency

## COLLABORATION AND PARTICIPATION IN RESEARCH PROJECT

- VINNOVA eTwin "Digital-Twin enabled Transition into Electromobility and Autonomy in Construction Equipment" – Main application and project coordinator
  - Funder: Swedish Innovation Agency (VINNOVA).
  - Number of Partners: 2.
  - Overall budget: 685.000 Swedish kronor (68.000 EUR ca.)
- KKS Model-Driven Development and Decision Support - Plus. (From January 2019 to June 2022) – Project member and contributor to the application.
  - Funder: Swedish Knowledge and Competence Development Foundation.
  - Number of Partners: 8.
  - Overall budget: 49.800.000 Swedish kronor (4.900.000 EUR ca.).
- VINNOVA VITUM. (From December 2014 to June 2017) Project member and Coordinator for the Blekinge Institute of Technology.
  - Funder: Swedish National Research Program in Aerospace Technology.
  - Number of Partners: 4.
  - Overall budget: 6.335.000 Swedish kronor (630.000 EUR ca.).
- KKS Model-Driven Development and Decision Support. (From February 2014 to December 2018) – Project member.
  - Funder: Swedish Knowledge and Competence Development Foundation.

- o Number of Partners: 9.
- o Overall budget: 92.000.000 Swedish kronor (9.000.000 EUR ca.).
- VINNOVA Innovativ Produktframtagning med Förmågor i Focus. (from December 2012 to June 2013) – Project member.
  - o Funder: Swedish Innovation Agency.
  - o Number of Partners: 1.
  - o Overall budget: 750.000 Swedish kronor (75.000 EUR ca.).
- EU FP7-IP CRESCENDO. (From May 2010 to October 2012) – Project member.
  - o Funder: EU FP7 Program.
  - o Number of Partners: 59.
  - o Overall budget: 55.000.000 EUR ca.

## OTHER SCIENTIFIC QUALIFICATION

### ACTIVITIES IN PEER-REVIEW SCIENTIFIC JOURNALS:

- **Editorial board member** for Education Sciences (MDPI)
- **Topic Board member** for Systems (MDPI)
- **Guest Editor:**
  - o Special issue “Model-Based Systems Engineering and Product Service Systems Design” in Systems, MDPI.
  - o Special Issue “The Role of Digitalization and Industry 4.0 Technologies for Product and Production Development in the Manufacturing Industry” in Sustainability, MDPI.
- Member of **Scientific advisory board/scientific committee** of:
  - o International Design Conference
  - o International Conference on Research Into Design
  - o International Conference on Cognitive Info Communication (2013)
  - o International Conference on Engineering Design
- **Main activity as a reviewer** for scientific journals:
  - o Artificial Intelligence for Engineering Design, Analysis and Manufacturing
  - o Concurrent Engineering Research and Applications
  - o Expert Systems with Applications
  - o Journal of Cleaner Production
  - o Journal of Systems Science and Systems Engineering
  - o European Journal of Engineering Education
  - o Education Sciences
  - o CIRP Journal of Manufacturing Science and Technology
  - o Design Science
  - o Aerospace

### ACADEMIC MEMBERSHIPS AND EXTERNAL COLLABORATION

- Member of the Design Society
- Member of INCOSE (International Council on System Engineering) until 2018.
- Member of Special Interest Group on Design Practice of the Design Society
- Member of the IFIP WG5.7 Special Interest Group on Service Systems Design, Engineering and Management

### AWARDS AND GRANTED FUNDS

- KK-Foundation. May 2021. “Nätbaserad utbildning för digitalisering och Industri 4.0” (online based education for digitalization and Industry 4.0). Project aiming to the development of international online courses in the field on digitalization and Industry 4.0. Principal applicant. Overall budget: 1.630.622 SEK (160.000 EUR ca)
- Strategic Innovation Programme for the Swedish Mining and Metal Producing Industry (SIP-STRIM 2020). March 2021. Principal applicant. Project: “Digital-Twin enabled Transition into Electromobility and Autonomy in Construction Equipment” – Overall budget: 685.000 Swedish kronor (68.000 EUR ca)
- **Larshiertasminne Bidrag till Enskilda Forskare**, December 2015. Funder: Stiftelsen Lars Hiertas Minne. Principal and unique applicant. Amount: 15.000 SEK.
- **Larshiertasminne Bidrag till Enskilda Forskare**, December 2014. Funder: Stiftelsen Lars Hiertas Minne. Principal and unique applicant. Amount: 20.000 SEK.
- **Wallenbergstiftelsen resestipendium**. December 2011. Funder: Wallenbergstiftelsen through the Grant Office at Luleå University of Technology. Principal and unique applicant. Amount: 16.000 SEK.
- 2011 – **Best Paper award** at the “3rd CIRP Conference on Industrial Product-Service Systems”. With the paper ‘Communicating the value of PSS design alternatives using color-coded CAD models’.

- **Outstanding Contribution and Distinguished Paper Award** at the 15th International Design Conference, Dubrovnik, Croatia, May 2018. Paper reference: Alessandro Bertoni, Siva Krishna Dasari, Sophie Hallstedt, and Andersson Petter. Model-based decision support for value and sustainability assessment: applying machine learning in aerospace product development. In 15 International Design Conference, Dubrovnik, pp. 2585-2596. The Design Society, 2018.

## DOCTORAL SUPERVISION

### Main Supervisor:

- 1 student in Mechanical Engineering at Blekinge Institute of Technology. Expected defense on December 2022 on the topic: "The Interplay of physical and virtual prototyping in PSS design".
- 1 student in Mechanical Engineering at Blekinge Institute of Technology. Expected defense on December 2024 on the topic: "Data-Driven Design in Product-Service Systems".

### Co-supervisor:

- 1 student in Strategic Sustainable Development at Blekinge Institute of Technology. Expected defense in June 2022 on the topic "Implementation of sustainability requirements in the early phase of innovation".
- 1 student in Mechanical Engineering at Blekinge Institute of Technology. Defended his licentiate thesis in December 2019 with the title: "Prototyping for Product-Service Systems innovation: Insights from the construction equipment industry".

### External reviewer

- 1 student in Systems Engineering at the Department of Mathematics and Natural Sciences at Blekinge Institute of Technology.

## TEACHING RESPONSIBILITIES

### NATIONAL AND INTERNATIONAL DOCTORAL COURSES

- Course Responsible and main teacher – Engineering Design Research Methodology, 2017-2020.
- Teacher – A Critical Review of the Product Development Process (P06), 2019).
- Teacher – Product Service Systems (P53), 2021.

### COURSES AT MASTER LEVEL

- Course responsible and main teacher for MT2537 – Product Service Systems Design Research (English); 2014-2015-2016-2017-2018-2019-2020.
- Course Responsible and main teacher MT2530 – Systems Engineering (English); (2014-2015-2016-2017-2018-2019-2020).
- Course Responsible and main teacher MT1424 – Development Project for exchange students (English), (2018-2019-2020).
- Course Responsible and main teacher MT1490 – Project Course for exchange students (English); (2017-2018-2019-2020).
- Teacher MT2572 – Digital Twins (English); (2021) – responsible for the Machine Learning module.
- Teacher MT2568 – Value Innovation (English); (2020) – Decision making matrixes.

### COURSES AT BACHELOR LEVEL

- Course responsible and main teacher MT1442 – Innovative and sustainable product development (Swedish). 2021.
- Teacher for NO002– Ingenjörorientering ("Introduction to Engineering") (Swedish and English), responsible for mechanical engineering (2015-2016-2017-2018-2019-2020).
- Teacher for MT1517 – Project course with product development and project management (Swedish); 2021 – responsible for the module on product development and project management.

## PEDAGOGICAL QUALIFICATION

### HIGHER EDUCATION IN UNIVERSITY PEDAGOGY

- UBV003P Högskolepedagogisk (Pedagogy in higher education) at Luleå University of Technology. 2012-2013, 7.5 credits.
- PE2518 Pedagogy in Higher Education – project course; at Blekinge Institute of Technology, 2016, 7.5 credits.
- CDIO Educational seminars – Blekinge Institute of Technology, 2016-2017.
- Doctoral Student Supervision course – Blekinge Institute of Technology, 2018, 5 credits.

- Sustainability integration in university education – April-May, 2019.
- Pedagogic Portfolio workshops - Blekinge Institute of Technology, 2019.

## HIGHER EDUCATION PEDAGOGICAL RECOGNITIONS

- Selected presented at “Best Practice in education” at Blekinge Institute of Technology, June 2019.
- Invited lecturer in BTH CDIO Educational seminars - Blekinge Institute of Technology, 2019
- Invited member of the editorial board of Education Sciences.

## COMPLETE LIST OF PUBLICATIONS

### PUBLICATIONS IN THE FIELD OF MECHANICAL ENGINEERING AND MANAGEMENT ENGINEERING (IN CHRONOLOGICAL ORDER):

- Bertoni, Alessandro, Tobias Larsson, Johan Wall, Christian Johansson Askling. Model-Driven Product Service Systems design: the Model-Driven Development and Decision Support (MD3S) approach. Accepted to the 23<sup>rd</sup> International Conference on Engineering Design-ICED21, Gothenburg, Sweden, 18-20 August, 2021.
- Machchhar, Raj Jiten; Alessandro Bertoni. Data-Driven Design Automation for Product-Service Systems Design: Framework and lessons learned from empirical studies. Accepted to the 23<sup>rd</sup> International Conference on Engineering Design-ICED21, Gothenburg, Sweden, 18-20 August, 2021.
- Ruvald, Ryan Michael, Andreas Larsson, Christian Johansson Askling, Alessandro Bertoni, Tobias Larsson. Evaluating Prototyping Support in Early Transformative PSS Design. Accepted to the 23<sup>rd</sup> International Conference on Engineering Design-ICED21, Gothenburg, Sweden, 18-20 August, 2021.
- Sala, Roberto, Alessandro Bertoni, Fabiana Pirola, and Giuditta Pezzotta. "The Data-Driven Product-Service Systems Design and Delivery (4DPSS) Methodology." In IFIP International Conference on Advances in Production Management Systems, pp. 314-321. Springer, Cham, 2020.
- Bertoni, Alessandro. "Development of a Circularity Impact and Failure Analysis: Obsolescence and Recyclability Integration." In Proceeding of NordDesign 2020, Lyngby, Denmark, 12th-14th August. 2020, Cambridge University Press.
- Bertoni, Alessandro. "Data-driven design in concept development: systematic review and missed opportunities." In Proceedings of the Design Society: DESIGN Conference, vol. 1, pp. 101-110. Cambridge University Press, 2020.
- Bertoni, Alessandro, Sophie Hallstedt, Petter Andersson, and Siva Krishna Dasari. "Integration of value and sustainability assessment in design space exploration by machine learning: an aerospace application". Design Science, 6, 2020.
- Bertoni, Marco, and Alessandro Bertoni. "Iterative value model generation in the engineering design process". Design Science, 5, 2019.
- Bertoni, Alessandro, and Marco Bertoni. "Modeling 'ilities' in early Product-Service Systems design". Procedia CIRP from the 11th CIRP Conference on Industrial Product-Service Systems. 2019.
- Marco Bertoni, Alessandro Bertoni, Murat Hakki Eres, Value Driven Design revisited: emerging modelling concepts and applications. Proceedings of the 22<sup>nd</sup> International Conference on Engineering Design, ICED 2019.
- Ryan Ruvald, Alessandro Bertoni, Christian Johansson Askling. A role for physical prototyping in Product-Service System design: Case study in construction equipment. Proceedings of the 22<sup>nd</sup> International Conference on Engineering Design, ICED 2019.
- Alessandro Bertoni and Marco Bertoni. Supporting early stage set-based concurrent engineering with Value Driven Design. Proceedings of the 22<sup>nd</sup> International Conference on Engineering Design, ICED 2019.
- Bertoni, Alessandro, and Marco Bertoni. "PSS cost engineering: A model-based approach for concept design." CIRP Journal of Manufacturing Science and Technology, 2018.
- Bertoni, Marco, Alessandro Bertoni, and Ola Isaksson. "Evoke: A value-driven concept selection method for early system design." Journal of Systems Science and Systems Engineering 27.1, 2018: 46-77.
- Ryan Ruvald, Andreas Larsson, Christian Johansson Askling, Alessandro Bertoni, PSS design innovation: prototyping in practice. Conditionally accepted with major revisions in the Proceedings of the DESIGN 2020 16th International Design Conference. Cavtat, Croatia. The Design Society, 2018.
- Bertoni, Alessandro. "Role and Challenges of Data-Driven Design in the Product Innovation Process." IFAC-PapersOnLine 51.11 2018: 1107-1112.
- Bertoni, Alessandro, Marco Bertoni, Massimo Panarotto, Christian Johansson, Tobias Larsson. "Value-driven product service systems development: Methods and industrial applications." CIRP Journal of Manufacturing Science and Technology 15 (2016): 42-55.
- Xin, Yi, Baron Claude, Vingerhoeds Rob, Alessandro Bertoni, and Esteban Phillipe. Data Visualization in Conceptual Design: Developing a Prototype to Support Decision Making. In 12th International Conference on Modeling,

Optimization and SIMulation-MOSIM'18. 2018.

- Martin Svensson, Alessandro Bertoni, and Maximilian Lanander. On knowledge maturity and biased nature of staged decision making in a high consequence industry. In DS92: Proceedings of the DESIGN 2018 15th International Design Conference, pp. 465-476. 2018.
- Alessandro Bertoni, Siva Krishna Dasari, Sophie Hallstedt, and Andersson Petter. Model-based decision support for value and sustainability assessment: applying machine learning in aerospace product development. In 15 International Design Conference, Dubrovnik, pp. 2585-2596. The Design Society, 2018.
- Marco Bertoni, Johan Wall, and Alessandro Bertoni. Model Driven Decision Arena: an aerospace study. In International Design Conference (DESIGN 2018), Dubrovnik, pp. 171-182. The Design Society, 2018.
- Alessandro Bertoni, Tobias Larsson. Data Mining in Product Service Systems Design: Literature Review and Research Questions. *Procedia CIRP* 64 (2017): 306-311.
- Bertoni, Alessandro, Tobias Larsson, Jonas Larsson, Jenny Elfsberg. "Mining data to design value: A demonstrator in early design". ICED17 21st International Conference on Engineering Design. 2017.
- Bertoni, Marco, Alessandro Bertoni. Nonlinear Quality Function Deployment: an experimental analysis. In ICED17 21st International Conference on Engineering Design, Vancouver. The Design Society, 2017.
- Alessandro Bertoni, Christoffer Levandowski, Ola Isaksson, Tobias C. Larsson: Virtual Modeling for Lifecycle Performance Assessment in aerospace design. *Procedia CIRP* 47 (2016): 335-340.
- Massimo Panarotto, Marco Bertoni, Alessandro Bertoni: Experimenting the use of value models as boundary objects in conceptual PSS design. *Procedia CIRP* 47 (2016): 370-375.
- Ola Isaksson, Alessandro Bertoni, Christoffer Lewandowski, Jakob Muller, Daniel Wiklund, Peter Johansson, Virtual contextual validation of technologies and methods for product development. In DS 84: Proceedings of the DESIGN 2016 14th International Design Conference. 2016.
- Marco Bertoni, Alessandro Bertoni: Models for value-driven engineering design. In DS 84: Proceedings of the DESIGN 2016 14th International Design Conference. 2016.
- Alessandro Bertoni, Marco Bertoni, Massimo Panarotto, Christian Johansson, Tobias Larsson: Expanding Value Driven Design to Meet Lean Product Service Development. *Procedia CIRP* 30 (2015): 197-202.
- Marco Bertoni, Christian Johansson, Alessandro Bertoni: Knowledge Enabled Engineering. 5th International Workshop of Advanced Manufacturing and Automation, Shanghai; 10/2015.
- Alessandro Bertoni, Marco Bertoni, Christian Johansson: Analysing the effects of value drivers and knowledge maturity in preliminary design decision-making. Proceedings of the 20th International Conference on Engineering Design, Milan, Italy; 08/2015.
- Alessandro Bertoni, Henrik Amnell, Ola Isaksson: Value modelling in aerospace sub-system design: linking quantitative and qualitative assessment. Proceedings of the 20th International Conference on Engineering Design, Milan, Italy; 08/2015.
- Anne Monceaux, Mario Kossmann, Steve Wiseall, Marco Bertoni, Ola Isaksson, Hakki Eres, Alessandro Bertoni, Ndrianarilala Rianantsoa: Overview of Value-Driven Design Research: Methods, Applications, and Relevance for Conceptual Design. *Insight* 12/2014; 17(4):37-39. DOI:10.1002/inst.201417437.
- Marco Bertoni, Alessandro Bertoni, Henk Broeze, Gilles Dubourg, Clive Sandhurst: Using 3D CAD Models for Value Visualization: An Approach with SIEMENS NX HD3D Visual Reporting. *Computer-Aided Design and Applications* 05/2014; 11(3):284-294. DOI:10.1080/16864360.2014.863492.
- Koteswar Chirumalla, Alessandro Bertoni, Aditya Parida, Christian Johansson, Marco Bertoni: Performance measurement framework for product-Service systems development: A balanced scorecard approach. *International Journal of Technology Intelligence and Planning* 12/2013; 9(2):146-164. DOI:10.1504/IJTIP.2013.058135.
- Alessandro Bertoni: Analyzing Product-Service Systems conceptual design: The effect of color-coded 3D representation. *Design Studies* 11/2013; 34(6):763-793. DOI:10.1016/j.destud.2013.02.003.
- Marco Bertoni, Alessandro Bertoni, Henk Broeze, Gilles Dubourg, Clive Sundhurst: Using 3D CAD models for value visualization: an approach with SIEMENS NX HD3D Visual Reporting. 11th Annual International CAD Conference; 06/2013.
- Alessandro Bertoni, Marco Bertoni, Ola Isaksson: Value visualization in Product Service Systems preliminary design. *Journal of Cleaner Production* 05/2013. DOI:10.1016/j.jclepro.2013.04.012.
- Marco Bertoni, Alessandro Bertoni, Ola Isaksson, Henrik Amnell, Christian Johansson: Value-oriented concept selection in aero-engine sub-systems design: The EVOKE approach. 23rd Annual INCOSE International Symposium, Philadelphia, PA; 06/2013.
- Ola Isaksson, Mario Kossmann, Marco Bertoni, Hakki Eres, Anne Monceaux, Alessandro Bertoni, Steve Wiseall, Xinwei Zhang: Value-Driven Design - A methodology to Link Expectations to Technical Requirements in the Extended

Enterprise. 23rd Annual INCOSE International Symposium, Philadelphia, PA; 06/2013.

- Alessandro Alessandro, Bertoni Marco: Effectiveness of Color-Coded CAD Models Value Visualization in PSS Conceptual Design. 5th CIRP International Conference on Industrial Product-Service Systems (IPSS), Bochum, Germany; 03/2013.
- Alessandro Bertoni. Value Driven Design – a methodology for value oriented decision making in preliminary design. Doctoral Thesis in the subject of “Product Innovation”, Luleå University of Technology, December 2013.
- Alessandro Bertoni, Åsa Ericson: Enhancing intra-cognitive communication in product design with color-coded CAD models: A visualization approach. Cognitive Infocommunications (CogInfoCom), 2012 IEEE 3rd International Conference on; 12/2012.
- Koteswar Chirumalla, Alessandro Bertoni, Åsa Ericson, Ola Isaksson: Knowledge-Sharing Network for Product-Service System Development: Is it atypical?. 4th CIRP International Conference on Industrial Product-Service Systems; 11/2012.
- Alessandro Bertoni. Value assessment capabilities in early PSS development: a study in the aerospace industry. Licentiate Thesis in the subject of “Functional Product Development”, Luleå University of Technology, March 2012.
- Marco Bertoni, Alessandro Bertoni, Ola Isaksson: Experiences with Value Visualisation in preliminary design: results from an aero-engine component study. 1st International Conference on Through-life Engineering Services, Shrivenham, United Kingdom; 11/2012.
- Alessandro Bertoni, Marco Bertoni: Assessing the value of Product/Service Systems alternatives: a conceptual framework. Design Principles and Practices 01/2011; 5(5):655-672.
- Alessandro Bertoni, Ola Isaksson, Marco Bertoni, Tobias Larsson: Assessing the Value of Sub-System Technologies including Life Cycle Alternatives. Globalized Solutions for Sustainability in Manufacturing, 03/2011: pages 669-674.
- Alessandro Bertoni, Marco Bertoni, Ola Isaksson: Communicating the Value of PSS Design Alternatives using Color-Coded CAD Models. 3rd CIRP International Conference on Industrial Product Service Systems, Technische Universität Braunschweig, Braunschweig,; 05/2011.
- Marco Bertoni, Alessandro Bertoni, Christian Johansson: Towards assessing the value of aerospace components - a conceptual scenario. In DS 68-9: Proceedings of the 18th International Conference on Engineering Design (ICED 11), Impacting Society through Engineering Design, Vol. 9: Design Methods and Tools pt. 1, Lyngby/Copenhagen, Denmark, 15.-19.08. 2011.

## **PUBLICATIONS IN THE FIELD OF HIGHER EDUCATION PEDAGOGY:**

- Johansson, Christian, Santosh Jagtap, Marco Bertoni, Alessandro Bertoni, and Johan Wall. "Shaping wicked problem solvers: innovating educational programs through design thinking." DS 101: Proceedings of NordDesign 2020, Lyngby, Denmark, 12th-14th August 2020 (2020): 1-13.
- Bertoni, Marco, Alessandro Bertoni. "Measuring Experiential Learning: An Approach Based on Lessons Learned Mapping." Education Sciences 10, no. 1 (2020): 11.
- Bertoni, Alessandro. "Introducing value driven design in engineering education: teaching the use of value models in preliminary design." International Journal of Technology and Design Education (2019): 1-22.
- Bertoni, Alessandro. "A Reverse Engineering Role-Play to Teach Systems Engineering Methods." Education Sciences 9.1 (2019): 30.

## **BRIEF STATEMENT ON RESEARCH ACTIVITIES**

The core of my research activity focus on methods and tools for the development and management of complex systems. This led me to adopt as a primary research methods participatory action research a case studies often implying my physical presence for short and medium periods at company partners facilities. At the beginning of my research carrier my most relevant contributions consisted of the development of a Value-Driven Design Methodology for systems engineering encompassing the prototype of a visualization technique to communicate the value of complex product-service systems combination during preliminary design using color-coded CAD models. After an almost exclusive focus on aerospace, my research interest developed into generalizing the Value-Driven Design approach in other industrial contexts. My research interest has evolved into the monetary quantification of the value of complex systems value and its integration in the product simulation platforms. This is coupled with the development of qualitative and quantitative simulation methods for lean product and service development. Between 2014 and 2018, I have also been actively involved in the extension of the use of methods and tools of Value-Driven Design into Set-Based Concurrent Engineering for platform-based design. The results consisted of the definition of a process to integrate functional modeling into a value-driven design approach. In the last four years, I have increasingly expanded my research into the use of data-intense technologies (e.g. data mining and machine learning), to generate predictive models to support engineering decision making, addressing the lack of trustworthiness in deterministic models.

**LINKS:**

ORCID: <http://orcid.org/0000-0001-5114-4811>

Scopus: <https://scholar.google.se/citations?user=DtofyKwAAAAJ&hl=en>

Google Scholar: <https://www.scopus.com/authid/detail.uri?authorid=50160930700>