Giovanna Broccia

Curriculum Vitae et Studiorum

Current Position

15/10/2022-present — **Research fellow**, *CNR - Istituto di Scienza e Tecnologie dell'Informazione "A. Faedo"*, FMT Lab.

Subject — Methodologies and formal techniques for the development of software systems for IoT applications and studies, including empirical ones, of the evaluation of human factors during the development processes of such software systems

Conferment — **Protocollo Conferimento ISTI nr. 0003233/2022**

01/02/2020 - present — **Research fellow**, *CNR - Istituto di Scienza e Tecnologie dell'Informazione "A. Faedo"*, FMT Lab.

Subject — Development and testing of new methodologies for the specification, implementation and validation of reliable intelligent systems based on formal methods and techniques and advanced verification tools through model checking

Conferment — **Protocollo Conferimento ISTI nr. 0000183/2020**

Previous Research Positions

Activities (01/02/2020-31/01/2021) — **Prot. Activities Report ISTI nr. 0000185/2021**

- Design of a Graphical User Interface for the spatial model checker VoxLogicA: As part of the work, I designed the graphic interface and its features and I implemented the first GUI prototype as a web application (using HTML/CSS and JavaScript).
- Use of the spatial model checker VoxLogicA for skin lesions segmentation: I contributed to the implementation of a segmentation procedure in ImgQL (the VoxLogicA input language) for the segmentation of skin lesions (i.e. nevi) and its application to a set of nevi images coming from a public dataset released by the International Skin Imaging Collaboration (ISIC) for the 2016 International Symposium on Biomedical Imaging (ISBI 2016) challenge titled "Skin Lesion Analysis toward Melanoma Detection". I contributed to the writing of the long paper "Feasibility of spatial model checking for nevus segmentation." (by Belmonte, G., Broccia, G., Vincenzo, C., Latella, D., Massink, M.) submitted to an international conference.

- I served as PC co-chair for the 9th International Symposium "From Data to Models and Back“ (DataMod2020). As part of the work, I edited the dedicated workshop proceedings (Bowles J., Broccia G., Nanni M. *DataMod2020: 9th International Symposium From Data to Models and Back. Proceedings of the 29th ACM International Conference on Information and Knowledge Management (CIKM'20)*). Moreover, I contributed to the creation of the workshop website and to social communication through the Twitter channel.

Activities (01/02/2021-31/01/2022)

Prot. Activities Report ISTI nr. 0000047/2022

- Continuation of the work on the VoxLogicA Graphic User Interface: As part of the work, we finalised the first prototype of GUI as a Desktop application (through Electron), adding some elements that we envisaged as useful for users. In particular, we extended the previous version with the feature to open and change the base image, the feature to search dataset elements according to conditions on similarity indexes, the run feature and other improvements (e.g. more sophisticated DICOM viewers). Moreover, we started working on a number of evaluations of the GUI (such as heuristic evaluation, theoretical evaluation and empirical evaluation). We performed a heuristic evaluation of the GUI using the ten heuristics proposed by Nielsen in *Nielsen, J.: Usability engineering. Morgan Kaufmann (1994)*. We performed an evaluation of the VoxLogicA GUI based on the cognitive processes underlying the interaction with the system. In particular, we show how the use of a GUI can reduce the cognitive efforts of users by computing and comparing the cognitive and memory load for pairs of use cases whose goal is the same, one performed with the GUI and one performed without it (i.e. using the different components of the system, such as a DICOM viewer and spreadsheets from the command line). Finally, in order to evaluate the usability of the GUI prototype, we conducted a first usability study with a group of 5 users.
- Continuation of the work on nevus segmentation: The paper "Feasibility of spatial model checking for nevus segmentation." (by Belmonte, G., Broccia, G., Vincenzo, C., Latella, D., Massink, M.) has been accepted and presented at the International Conference on Formal Methods in Software Engineering (FormaliSE 2021). Additionally, further work has been conducted on the analysis of the datasets released by ISIC for the 2017 challenge. The composition of such datasets poses further questions on the skin lesions segmentation due to the presence of additional extraneous elements in the images such as ink marks and highlights (brighter spots in images that might confound the segmentation). Moreover, we worked on the comparison of our technique with the algorithm proposed in "SDI+: A novel algorithm for segmenting dermoscopic images“ by Guarracino, M. R., and Lucia M. We extended our specification with some of the functions proposed in their paper to check if the extension causes an improvement in the segmentation results (in particular, highlight identification and segmentation of hairs and ink marks).

- Preliminary work on using VoxLogicA to query medical images datasets
- I served as PC co-chair for the 10th International Symposium "From Data to Models and Back“ (DataMod2021). Moreover, I created the workshop website.
- Preliminary work on Attack-Defence Tree users' understandability.
- Preliminary work on Segmentation of lings parenchyma using VoxLogicA.

Activities (01/02/2022 - 30/09/2022)

Prot. Activities Report ISTI nr. 0002863/2022

- Continuation of the work on the VoxLogicA Graphic User Interface: As part of the work I contributed to the improvement of the GUI within an iterative design cycle paradigm: each improvement is the product of a GUI evaluation through a user study and a new prototype's implementation. In particular, the new features we want to evaluate more in detail are the handling of the similarity indexes and the base images. As regards indexes, from a previous user test, we noticed that the way the indexes are managed in the GUI prototype is not clear to users. I implemented a number of solutions that we plan to test in the next user study. As regards base images, their handling has not yet been evaluated through a usability test. However, during the design phase there have been some doubts about the base images handling: should we consider base images as layers? What makes a base image and a layer different? It could be possible to use a layer as a base image and vice versa? Therefore, I implemented a new way to present and handle the base images. We plan to test this solution in the next user study.
- At the moment, the questionnaire for the user study is submitted through Google Forms. Although the service is compliant with GDPR and privacy best practices, we are persuaded that the usage of the platform provided by CNR would be beneficial to managing users' data safely, and preventing the risk of identification when accessing the platform. Therefore, we have completed the procedure to use the CNR survey platform and we moved there the questionnaire.
- To better support users in the training phase before the usability test and in order to reach a broader audience, I have created a number of training videos that would give users the background necessary to complete the usability tests.

- Continuation of the work on ADT users' understandability study: I contributed to the creation of an understandability study which aims to investigate how much the notation of the Attack-Defense Tree is comprehensible by humans, and consequently, easily usable by users belonging to different fields and with different backgrounds. I'm the Principal Investigator of the study. We expect to answer the following research questions: RQ1. How understandable is the semantics of the notation? RQ2. How much transferable is the knowledge of the notation after the training phase? RQ3. How much is an instantiated ADT comprehensible by users? RQ4. To what extent is the notation appreciated by users? We will answer RQ1, RQ2, and RQ3 with a study composed of 4 steps and RQ4 with a post-study questionnaire.
- As PC Co-Chair of Datamod 2021, we finalised the procedure for the publication of the dedicated proceedings, that has been published by Springer (LNCS 13268).
- I participated in the introduction days at the University of L'Aquila and the University of Cagliari "Lavorare con la Scienza" where I gave a presentation on "Using spatial model checking for medical images analysis".
- I participated in the kick-off meeting for the PRIN project T-Ladies where I gave a presentation on "Human Factors Evaluation in IoT Software Design and Implementation".
- I contributed to the paper "Encoding and Verifying Guidelines for Automated Contouring in Radiotherapy using VoxLogicA" presented at Ital-IA 2022 Convegno del Laboratorio Nazionale CINI-AIIS.

15/03/2019 - 31/01/2020 **Research fellow**, *CNR - Istituto di Scienza e Tecnologie dell'Informazione "A. Faedo"*, HIIS Lab.

Subject Design and evaluation of person-computer interaction

Conferment **Protocollo Conferimento ISTI nr. 0000519/2019**

Activities (15/03/2019-31/01/2020) **Prot. Activities Report ISTI nr. 0000222/2020**

- I designed and developed a flexible view of the validation results considering two kinds of users (users with high expertise in web programming and users without web programming knowledge), and I contributed to the tool's improvement by adding the possibility to validate entire websites. As part of the creation of the flexible view, a result overview has been created, where users can check the validation settings, the number of erroneous/warning checks performed on the page, and they can verify how much the webpage is accessible through a measure called Mauve Accessibility Percentage, computed as the number of erroneous checks over the total number of checks performed by the tool.
- In order to evaluate the results of flexible view with users, I contributed to the conduction of a usability study with 19 users.

- As regards the multipage validation, I contributed to the addition of a web crawler to the tool which is able to fetch a number of pages starting from the base URL of the selected website, going to a certain depth of the website tree. In order to support a validation multipage, I worked on the implementation of a landing page where users can select if they want to validate a single web page or a website. If they want to validate an entire website they have to free register and log into the tool. The multipage validation provides for an asynchronous PDF report sent by mail. I worked at the new interface for the multipage validation and at the new interface for managing logged-in users. Finally, I contributed to creating the PDF report sent asynchronously to users who perform a multipage validation. More generally, I contributed to an overall graphic improvement to the tool on all its pages.
- The work on the MAUVE tool improvement and evaluation has been reported in the long paper "Flexible Automatic Support for Web Accessibility Validation“ by Broccia, G., Paternò, F., Pulina, F. (2020), accepted at The 12th ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS 2020).
- I contributed to the activities within the European project "WADcher: Web Accessibility Directive Decision Support Environment“: Writing the project deliverables concerning the first pilot deployment plan and the evaluation methodology; Implementation of a number of services in order to integrate the WADcher platform into the tool MAUVE; Implementation of the techniques to store and retrieve the validation results in a no-SQL database. Moreover, I attended a consortium meeting in Thessaloniki where all partners performed a collaborative workshop on Cognitive Walkthrough of the prototypes in order to evaluate the actual usability of all the components implemented, in order to find eventual bugs, and as a trial of the pilots.
- I served as Web & Social Media Chair at the 18th International Conference on Mobile and Ubiquitous Multimedia (MUM2019). Moreover, I designed and created the graphic material for the conference: program, badge, posters and flyers.

1/11/2018 - 15/03/2019 **Research fellow**, *Università di Pisa, Department of Computer Science*, Ricevuta di consegna domanda nr. 1037 del 26/09/2018.

Subject Model-based analysis of data on usage of biomedical devices in multitasking situations

Conferment **Protocollo Conferimento UNIVERSITÀ DI PISA nr. 0001211/2018**

Activities

- Analysis of the data gathered from an experimental study with real users involved in two concurrent tasks. The study validated the algorithm for simulating human selective attention in multitasking situations.

- Definition and implementation of a simulator in Java as a discrete event simulation.
- Editing the Ph.D. thesis "A Formal Framework for Modelling and Analysing Safety-Critical Human Multitasking“ according to the reviewers' corrections.

Education

2015–2018 **PhD Student, Computer Science**, *Università di Pisa*.

Judgement Optimum

2011–2015 **MS, Digital Humanities (LM-43)**, *Università di Pisa*.

Judgement 110/110 summa cum laude

2006–2011 **BS, European Literatures for Publishing and Cultural Production (L-10)**, *Università di Pisa*.

Judgement 100/110

Ph.D. Thesis

Title *A Formal Framework for Modelling and Analysing Safety-Critical Human Multitasking*

Supervisor Prof. Paolo Milazzo

Description This thesis is focused on the creation of a formal model of a multitasking interaction with safety-critical systems. The model describes the cognitive processes involved in human-computer interaction and the switching of attention among concurrent tasks, and it builds on classical results from applied psychology on selective attention and working memory.

The model has been implemented through a Java Simulator, which can be used to have quick feedback on whether users can safely complete multiple tasks at the same time.

Afterward, the model has been implemented through a computational model in Real-Time Maude, which enables us to analyse multitasking through simulation and reachability analysis.

We validate the algorithm underlying the model, against data gathered from an experimental study we devised in collaboration with a group of psychologists of the University of Pisa. We implemented a web application where users were asked to interact with two concurrent tasks.

Finally, we show how a number of prototypical multitasking problems can be analysed in Real-Time Maude by applying our framework to three case studies.

Masters Thesis

Title *A Domain Specific Language for Game Modelling and Analysis*

Supervisor Prof. Paolo Milazzo

Description This research broadly extends a previous work which deploys PRISM Model Checker for modelling and analysing board games. Specifically, we devised and developed a Domain Specific Language (DSL) in order to improve the expressiveness, effectiveness and conciseness of the original modelling. This novel DSL further enhance the previous work by allowing the user to model a wider set of features of the board game.

Skills

Model Checkers

VoxLogicA

Use of spatial and spatio-temporal model checking techniques, through the spatial model checker VoxLogicA, for automatic and semi-automatic contouring of medical images, in particular for the contouring of images of nevi that can help recognise Melanoma at an early stage described in the paper "Feasibility of spatial model checking for nevus segmentation" by G. Belmonte, G. Broccia, V. Ciancia, D. Latella, M. Massink (DOI https://doi.org/10.1109/FormaliSE52586.2021.00007). Code available at https://github.com/brocciagi/Spatial-Model-Checking-for-Nevus-Segmentation

PRISM Model Checker

Use of PRISM Model Checker for modelling and analysing board games, in the context of the Master Thesis "A Domain Specific Language for Game Modelling and Analysis" supervised by Prof. Paolo Milazzo and available at https://etd.adm.unipi.it/theses/available/etd-09032015-150400/

Rewriting Logic Languages

Maude

- Design and implementation of an executable computational model for modelling, simulation and analysis of human-machine interaction in multitasking scenarios described in the paper "Formal modeling and analysis of safety-critical human multitasking“ by G. Broccia, P. Milazzo and P. C. Ölveczky (DOI https://doi.org/10.1007/s11334-019-00333-7) and in the paper "Modeling and Analysis of Human Memory Load in Multitasking Scenarios“ by G. Broccia, P. Masci and P. Milazzo (DOI https://doi.org/10.1145/3220134.3220140). Code available at: http://www.di.unipi.it/msvbio/software/HumanMultitasking.html.

- Design and implementation of three case studies where the Safety-Critical Human Multitasking model has been applied to analyse a number of multitasking situations described in the paper "Formal modeling and analysis of safety-critical human multitasking“ by G. Broccia, P. Milazzo and P. C. Ölveczky (DOI https://doi.org/10.1007/s11334-019-00333-7). Code available at: http://www.di.unipi.it/msvbio/software/HumanMultitasking.html).

Users Studies Usability studies, Comprehensibility studies, Validation studies

- Design and organisation of a user study in order to evaluate the usability of the VoxLogicA GUI prototype. Part of the results are presented in the paper "Towards a GUI for Declarative Medical Image Analysis: Cognitive and Memory Load Issues“ by G. Broccia, V. Ciancia, D. Latella, M. Massink (DOI https://doi.org/10.1007/978-3-031-06388-6_14).
- Design and implementation of a user study in order to evaluate the understandability of the Attack-Defense Tree notation. The test has been approved by the CNR ethical board after the submission of the required documentation.
- Design and organisation of an experimental users study described in the paper "Validation of a Simulation Algorithm for Safety-Critical Human Multitasking.“ by G. Broccia, P. Milazzo, C. Belviso, and C. B. Montiel (DOI https://doi.org/10.1007/978-3-030-54994-7_8). A web application has been devised where real users are asked to interact with two concurrent tasks. All data about the interaction with the application are automatically collected. The test consists of two parts, available at http://pages.di.unipi.it/milazzo/AppSpans/ and http://pages.di.unipi.it/milazzo/AppSpans2/
- Design and organisation of a user study in order to evaluate the usability of the new results' view of MAUVE accessibility validator described in the paper "Flexible Automatic Support for Web Accessibility Validation“ by G. Broccia, M. Manca, F. Paternò, F. Pulina (DOI https://doi.org/10.1145/3397871).
- Organisation of a Cognitive Walkthrough test among partners of the H2020 project "WADcher" in order to evaluate the usability of the prototype interfaces.

Web CSS, HTML, XML, JavaScript, Bootstrap

- Design and implementation of the GUI prototype for the spatial model checker VoxLogicA. The user interface has been implemented using HTML, CSS and Javascript and runs as a desktop application through Electron. The GUI and its evaluation are presented in the Technical Report "A graphical user interface for medical image analysis with declarative spatial logic - Cognitive and memory load evaluation“ by G. Broccia, V. Ciancia, D. Latella, M. Massink (DOI https://doi.org/10.1109/FormaliSE52586.2021.00007) and in the paper "Towards a GUI for Declarative Medical Image Analysis: Cognitive and Memory Load Issues“ by G. Broccia, V. Ciancia, D. Latella, M. Massink (DOI https://doi.org/10.1007/978-3-031-06388-6_14).

Programming Languages

JAVA

- Design and implementation of the simulation algorithm of human attention described in the paper "An Algorithm for Simulating Human Selective Attention" by G. Broccia, P. Milazzo and P. C. Ölveczky (code available at: http://www.di.unipi.it/msvbio/software/AttentionSim.html)
- Design and implementation of an improved version of the simulation algorithm described in the PhD thesis "A Formal Framework for Modelling and Analysing Safety-Critical Human Multitasking" by G. Broccia (code available at: http://www.di.unipi.it/msvbio/software/AttentionSim.html)
- Implementation of new features for MAUVE (Multiguideline Accessibility and Usability Validation Environment) within the MVC paradigm: specification of new results view in JSP; specification of the new layout; integration of a web crawler; specification of the new results report in PDF (to be sent via mail); persistence of the results in a no-SQL database.
- Implementation of REST APIs for the integration of the tool MAUVE with an external infrastructure (within the H2020 Project "WADcher").
- Implementation of queues infrastructure for the communication of the tool MAUVE with an external framework (within the H2020 Project "WADcher").

Professional Activities

2023 FormaliSe: International Conference on Formal Methods in Software Engineering" (iFM 2022)

Social Media & Web Chair (https://www.formalise.org/)

2022 17th International Conference on integrated Formal Methods" (iFM 2022)

Program committee member (https://ifm22.si.usi.ch/pages/committees/)

2021 10th International Symposium "From Data to Models and Back (DataMod)" (DataMod 2021)

Program committee co-chair (https://datamod2021.github.io/)

2020 9th International Symposium "From Data to Models and Back (DataMod)" (DataMod 2020)

Program committee co-chair (https://datamod2020.github.io/)

2019 18th International Conference on Mobile and Ubiquitous Multimedia (MUM 2019)

Program committee member (Posters)

2019 18th International Conference on Mobile and Ubiquitous Multimedia (MUM 2019)

Web & Social Media Chair (https://www.mum-conf.org/2019/index.php?web=committee)

2019 1st International Workshop on Cognition: Interdisciplinary Foundations, Models and Applications (CIFMA 2019)

Program committee member (https://cifma.github.io/workshop-2019.html)

2019 8th International Symposium "From Data to Models and Back (DataMod)" (DataMod 2019)

Program committee member (http://pages.di.unipi.it/datamod/edition-2019/#organization)

2019 3rd Workshop on Formal Co-Simulation of Cyber-Physical Systems (COSim-CPS 2019)

Program committee member (https://sites.google.com/view/cosimcps19)

2018 2nd Workshop on Formal Co-Simulation of Cyber-Physical Systems (COSim-CPS 2018)

Program committee member (https://sites.google.com/view/cosimcps18)

Teaching Roles

2021 **Introductory lecture on Spatial logics and Spatio-temporal model checking on 3D MRI images and on the cognitive aspects involved in images analysis through VoxLogicA**.

Software Validation and Verification Class, CdS in Informatica, Università di Pisa

2018 **Co-supervisor for the Master Thesis in Digital Humanities, Università di Pisa**.

Student: Luca Vitrini

Thesis: Progettazione e sviluppo di una piattaforma web per la realizzazione di test cognitivi (Design and implementation of a web platform for the creation of cognitive tests) https://etd.adm.unipi.it/theses/available/etd-06052018-094242/

2018 **Co-supervisor for the Master Thesis in Digital Humanities, Università di Pisa**.

Student: Stefano Costanzo

Thesis: Progettazione di un sistema di simulazione per reti sociali (Design and implementation of a simulation system for social network) https://etd.adm.unipi.it/theses/available/etd-09102018-104315/

26/10/2016 - 16/12/2016 **Teaching Assistant**, *Digital Humanities, Università di Pisa*.

Contract between the University of Pisa (Dipartimento di Filologia, Letteratura e Linguistica) and the undersigned Giovanna Broccia stipulated on 28/10/2016.

Creation of the exams' projects specifications for the Programming Fundamentals and Data Analysis course (Java Programming module)

Visiting Research

1 September 2018 - 1 October 2018 **University of Edinburgh**, *School of Informatics*, Within the Pegaso Doctorate Program.

Definition of the formal specification of the Safety-Critical Human Multitasking model as a probabilistic transition system as described in the Ph.D. Thesis "A formal framework for modelling and analysing safety-critical human multitasking." by G. Broccia available at https://etd.adm.unipi.it/theses/available/etd-02112019-144432/

11 June 2018 - 24 June 2018 **École Polytechnique, Inria Saclay Île-De-France**, Within the Pegaso Doctorate Program.

Attending the ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS 2018)

13 February 2018 - 31 March 2018 **University of Minho**, *School of Engineering*, Within the Pegaso Doctorate Program.

Definition and modelling of case studies on the concurrent interaction with multiple medical devices at the same time

6 February 2017 - 13 May 2017 **University of Oslo**, *Department of Informatics*, Within the Pegaso Doctorate Program.

Definition and modelling of a Real-Time Maude framework for the analysis of human-machine interaction in a multitasking scenario

Attendance at the "Logic for System Analysis" course

Soft Skills

- Design and creation of videos and slides for the divulgation of research results and training materials (2022) (available at https://youtu.be/WZtAILI_Y_Q, https://youtu.be/yn705eavNfU, https://youtu.be/zVf_-6792Kg, https://youtu.be/ZlG7VLZwjmE).
- Design and creation of the logo for the Formal Methods and Tools (FMT) Lab (2022).
- Design and implementation of the website for the 9th and 10th editions of the International Symposium "From Data to Models and Back – DataMod" (2020/2022) (available at https://datamod2020.github.io/ and https://datamod2021.github.io/).
- Organiser of "Ph.D. event at Computer Science Department, University of Pisa" (2019) (http://phdevent.di.unipi.it/2018/).
- Ph.D. Students representative in the Ph.D. council (2017/2018).

Languages

Italiano **Mothertongue**

English **Intermediate**

Spanish **Intermediate**

French **Basic**

Awards

2015 **Pegaso Doctorate Scholarship**.
Scholarship funding my Ph.D. studies
Enrollement Prot. nr. 32348, 21/10/2015, Università di Pisa
Scolarship Acceptance Prot. nr. 33340, 27/10/2015, Università di Pisa

Publications

2022 Broccia, G., Vincenzo, C., Latella, D., Massink, M. "Towards a GUI for Declarative Medical Image Analysis: Cognitive and Memory Load Issues" *International Conference on Human-Computer Interaction (HCII 2022), pp. 103–111. Springer, Cham (2022), (CCIS 1581).*

2022 Bowles, J., Broccia, G., Pellungrini, R. "From Data to Models and Back: 10th International Symposium, DataMod 2021, Virtual Event, December 6-7, 2021, Revised Selected Papers." *Springer (LNCS 13268)*

2022 Belmonte, G., Broccia, G., Bussi, L., Vincenzo, C., Latella, D., Massink, M. "Encoding and Verifying Guidelines for Automated Contouring in Radiotherapy using VoxLogicA" *Ital-IA 2022 Convegno del Laboratorio Nazionale CINI-AIIS*

2021 Broccia G., Ciancia V., Latella D., Massink M. "A graphical user interface for medical image analysis with declarative spatial logic - Cognitive and memory load evaluation" *ISTI Technical Report, ISTI-2021-TR/012, pp.1–39, 2021. DOI https://doi.org/10.1109/FormaliSE52586.2021.00007*

2021 Belmonte, G., Broccia, G., Bussi, L., Ciancia, V., Latella, D., Massink, M. "Querying medical imaging datasets using spatial logics (position paper)" *In: International Conference on Model and Data Engineering, pp. 285-301. Springer, Cham (2021, June).*

2021 Belmonte G., Broccia G., Ciancia V., Latella D., Massink M. "Feasibility of Spatial Model Checking for Nevus Segmentation" *in 2021 IEEE/ACM 9th International Conference on Formal Methods in Software Engineering (FormaliSE), 2021, pp. 1-12*

2020 Belmonte G., Broccia G., Ciancia V., Latella D., Massink M. "Spatial Model Checking for Nevus Segmentation" *in* https://arxiv.org/abs/2012.13289

2020 Bowles J., Broccia G., Nanni M. "DataMod2020: 9th International Symposium From Data to Models and Back" *in Proceedings of the 29th ACM International Conference on Information and Knowledge Management (CIKM'20)*

2020 Broccia G., Manca M., Paternò F., Pulina F. "Flexible Automatic Support for Web Accessibility Validation" *in Proceedings of the ACM on Human-Computer Interaction, Volume 4 (EICS): 83:1-83:24 (2020)*

2019 G. Broccia, P. Milazzo, C. Belviso, C. Berrocal Montiel. "Validation of a Simulation Algorithm for Safety-Critical Human Multitasking" *in Proceedings of 23rd International Symposium on Formal Methods, collocated workshop 8th International Symposium "From Data to Models and Back (DataMod)" (2019)*

2019 G. Broccia, P. Milazzo, P. C. Ölveczky. "Formal Modeling and Analysis of Safety-Critical Human Multitasking" *in Innovations in Systems and Software Engineering, a NASA Journal*

2019 G. Broccia. "A Formal Framework for Modelling and Analysing Safety-Critical Human Multitasking" *Ph.D. Thesis (2019), University of Pisa*

2018 G.Broccia, P. Masci, P. Milazzo. "Modeling and Analysis of Human Memory Load in Multitasking Scenarios: Late-Breaking Results" *in Proceedings of the ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS 2018): 9-15. ACM*

2018 G. Broccia, P. Milazzo, P. C. Ölveczky. "An Executable Formal Framework for Safety-Critical Human Multitasking" *in NASA Formal Methods Symposium (NFM 2018): 54-69. Springer, Cham.*

2017 G. Broccia, P. Milazzo, P. C. Ölveczky. "An Algorithm for Simulating Human Selective Attention" *in International Conference on Software Engineering and Formal Methods (SEFM 2017) : 48-55. Springer, Cham.*

2017 G. Broccia. "Model-Based Analysis of Driver Distraction by Infotainment Systems in Automotive Domain" *in Proceedings of the 2017 ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS 2017): 133-136*

2016 P. Milazzo, G. Pardini, G. Broccia. "Towards a High-Level Model Checking Language: Object-orientation, Data Structures and Local Variable Pruning" *in International Workshop on Formal Methods for Industrial Critical Systems and Automated Verification of Critical Systems (FMICS-AVoCS 2016)*