






Maxime DANIEL

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Experience

- 2021 – Now **Lecturer.** ESTIA Recherche, ESTIA, 97 allée Théodore Monod, Technopole Izarbel, 64210 Bidart, France.
- 2020 – 2021 **Assistant Lecturer.** ESTIA Recherche, ESTIA, 97 allée Théodore Monod, Technopole Izarbel, 64210 Bidart, France.
- 2018 – 2020 **Postdoctoral Fellow.** ESTIA Recherche, ESTIA, 97 allée Théodore Monod, Technopole Izarbel, 64210 Bidart, France.

Education & Qualification

- 2019 – 2024 **Qualification for Lecturer Position in Section 27 - Computer Science**
Number: 1922733197.
Granted: February 14, 2019.
Validity: 5 years.
- 2015 – 2018 **Doctorate in Computer Science, Speciality in Human-Computer Interaction, University of Bordeaux, France.**
Title: *Shape-Changing Cylindrical Displays: Application to Data Physicalization and Peripheral Interaction for Energy Demand-Side Management.*
Jury:

<i>Pascal Desbarats</i>	<i>Professor Univ. Bordeaux</i>	<i>President</i>
<i>Gaëlle Calvary</i>	<i>Professor ENSIMAG</i>	<i>Reporter</i>
<i>Elena Mugellini</i>	<i>Professor HES-SO</i>	<i>Reporter</i>
<i>Aurélien Tabard</i>	<i>Lecturer Univ. Lyon 1</i>	<i>Examinator</i>
<i>Alexandre Dugarry</i>	<i>CEO GreenMe</i>	<i>Examinator</i>
<i>Stéphane Kreckelbergh</i>	<i>Research Associate ESTIA</i>	<i>Co-supervisor</i>
<i>Nadine Couture</i>	<i>Professor ESTIA</i>	<i>Director</i>
<i>Guillaume Rivière</i>	<i>Associate Professor ESTIA</i>	<i>Director</i>

Host laboratory:
ESTIA Recherche, ESTIA, 97 allée Théodore Monod, Technopole Izarbel, 64210 Bidart, France.

Education & Qualification (suite)

- 2013 – 2015 **Master in Computer-Science, Speciality in Image, Sound and Video, Université de Bordeaux, France.**
Title: *Virtual Environment for Electroencephalography-Based Evaluation of User Experience.*
Jury:
Pascal Desbarats Professor Univ. Bordeaux Referent
Julien Castet PhD Univ. Grenoble, R&D Immersion Tutor
Jeremy Frey PhD Student Univ. Bordeaux, INRIA Collaborator
Fabien Lotte Research Leader INRIA Collaborator
Host laboratory:
POTIOC Team, INRIA Bordeaux, 200 Avenue de la Vieille Tour, 33405 Talence.
Mention: *Good.*
- 2010 – 2013 **Licence in Mathematics, Computer Science and Statistics, Speciality in Computer Science, University of South Brittany, Vannes, France.**
Mention: *Good.*
- 2010 **Baccalaureate in Economics and Social Science, Lycée Benjamin-franklin, Auray, France.**

Teaching

ESTIA 2015-2021

- 1h L + 3h AL | 2019 **Internet of Things 3rd Year Engineer Cycle (M2).**
Content: *Introduction to the concept, architecture, applications and challenges of the Internet of Things (IoT). Implementing a web application using the ESP8266 module for monitoring sensors and controlling actuators.*
Leader: *Maxime Daniel.*
- 1h L | 2017 **Augmented Virtuality 3rd Year Engineer Cycle (M2).**
Content: *Feedback on the design and the implementation of a Tangible User Interface (TUI) – an embodiment of the concept of Augmented Virtuality (AV).*
Leader: *Maxime Daniel.*
- 1h L + 2h AL | 2018 **GIT Initiation. 3rd Year Engineer Cycle (M2).**
Content: *Initiation to GIT for saving and tracking changes in source code during software development.*
Leader: *Maxime Daniel.*
- 30m L + 1h30 AL | 2019-2022 **Literature Review: Method and Tools. 2nd Year Engineer Cycle (M1).**
Content: *Gathering and analyzing knowledge using the Systematic Literature Review (SLR) method and tools such as Zotero and Microsoft Excel.*
Leader: *Maxime Daniel.*

Teaching (suite)

2h L + 10h AL 2019-2022	Communicating and Mobile Objects. <i>2nd Year Engineer Cycle (M1).</i> <u>Content:</u> <i>Implementing the concept of Internet of Things (IoT) through the software & hardware development of a Java Android Application communicating in Bluetooth with an Arduino board using sensors and actuators.</i> <u>Leader:</u> <i>Maxime Daniel.</i>
2h L + 10h AL 2016-2022	Event-Oriented Programming. <i>2nd Year Engineer Cycle (M1).</i> <u>Content:</u> <i>Implementing the architecture Model-View-Controller (MVC) through the software development of a Graphical User Interface (GUI) with Java programming.</i> <u>Leader:</u> <i>Dimitri Masson.</i>
12h L + 24h AL 2016-2022	Object-Oriented Programming. <i>2nd Year Engineer Cycle (M1).</i> <u>Content:</u> <i>Implementing the concept of objects, classes, Inheritance and polymorphism with Java programming.</i> <u>Leader:</u> <i>David Gomez.</i>
8h L + 16h AL 2016-2022	Procedural Programming. <i>1st Year Engineer Cycle (M1).</i> <u>Content:</u> <i>Implementing the concept of data structures, control structures and procedures with C programming.</i> <u>Leader:</u> <i>Guillaume Rivière.</i>
	Web Technologies. <i>1st Year Engineer Cycle (L3).</i> <u>Content:</u> <i>Implementing a web site with HTML5, CSS3 and JS programming.</i> <u>Leader:</u> <i>Nadine Couture.</i>
16h Tutorat 2016-2022	Engineer Projects. <i>3rd Year Engineer Cycle (M2) and 2nd Year Engineer Cycle (M1).</i>
16h Tutorat 2019-2022	Bachelor projects. <i>3rd Year Bachelor Cycle (L3).</i>

Research

Visions

Tangible Bits	People have developed sophisticated skills for sensing and manipulating our physical environments. However, most of these skills are not employed by traditional Graphical User Interface (GUIs). Tangible Bits [Ishii and Ullmer, 1997; Ishii, 2008] seeks to build upon these skills by giving physical form to digital information, seamlessly coupling the dual worlds of bits and atoms: Tangible User Interfaces (TUIs) are the embodiment of this vision by employing physical objects for the representation and the manipulation of digital information [Ishii and Ullmer, 1997].
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Research (suite)

Challenges

Shape Change Making physical objects as malleable as virtual objects is a great challenge for TUIs. Since the last decade, there is an increasing number of research works on **Shape-Changing Interfaces (SCIs)** [Strohmeier, 2016]. Nowadays research on SCIs focuses more on the feasibility than on the utility or usability of Shape Change [Rasmussen et al., 2012]: understanding the usefulness and the user experience of shape change is still a challenge for TUIs [Alexander et al., 2018].

Projects

Cylindrical Shape Change for Display We designed **CairnFORM** [Daniel et al., 2018; Daniel et al., 2019], a stack of expandable illuminated rings for display that can change of cylindrical shape (e.g., cone, double cone, bicone, cylinder, spheroid). Through user studies, we demonstrate that cylindrical shape-change can be used (1) for informing users around the display through **Data Physicalization** [Daniel et al., 2019], (2) for unobtrusively notifying users around the display through **Peripheral Interaction** [Daniel et al., 2019], and (3) for offering a greater **User Experience** over time than a traditional flat display with no shape-change [Daniel et Rivi re, 2021].


Publications in Peer-Reviewed International Conferences

- 4 pages [Extended Abstract] Delamare, W., **Daniel, M.** and Hasan, K. (2022). Multifingerbubble: A 3d bubble cursor variation for dense environments. *Extended abstracts of the 2022 chi conference on human factors in computing systems*. CHI EA '22. New Orleans, LA, USA: Association for Computing Machinery. doi:10.1145/3491101.3519692
- [Work In Progress] **Daniel, M.** and Rivi re, G. (2021). Exploring axisymmetric shape-change's purposes and allure for ambient display: 16 potential use cases and a two-month preliminary study on daily notifications. *Proceedings of the fifteenth international conference on tangible, embedded, and embodied interaction*. **TEI '21**. Salzburg, Austria: Association for Computing Machinery. doi:10.1145/3430524.3442452
- 8 pages [Long Paper] **Daniel, M.**, Rivi re, G. and Couture, N. (2019). Cairnform: A shape-changing ring chart notifying renewable energy availability in peripheral locations. *Proceedings of the thirteenth international conference on tangible, embedded, and embodied interaction* (pp. 275–286). **TEI '19**. Tempe, Arizona, USA: ACM. doi:10.1145/3294109.3295634


Research (suite)

- 4 pages [Work In Progress] **Daniel, M.**, Rivière, G. and Couture, N. (2018). Designing an expandable illuminated ring to build an actuated ring chart. *Proceedings of the twelfth international conference on tangible, embedded, and embodied interaction* (pp. 140–147). **TEI '18**. Stockholm, Sweden: ACM. doi:10.1145/3173225.3173294
- 8 pages [Long Paper] Frey, J., **Daniel, M.**, Castet, J., Hachet, M. and Lotte, F. (2016). Framework for electroencephalography-based evaluation of user experience. *Proceedings of the 2016 chi conference on human factors in computing systems* (pp. 2283–2294). **CHI '16**. San Jose, California, USA: ACM. doi:10.1145/2858036.2858525

Publications in Peer-Reviewed Francophone Conferences

- 2 pages [Demonstration] **Daniel, M.**, Riviere, G. and Couture, N. (2018). CairnFORM. AFIHM (Ed.), *30eme conférence francophone sur l'interaction homme-machine* (2p). **IHM '18**. Brest, France.  <https://hal.archives-ouvertes.fr/hal-01900064>
- 4 pages [Work In Progress] **Daniel, M.**, Couture, N. and Rivière, G. (2017). Cairns: An ambient tangible interface for shifting energy demand at work. *Proceedings of the 29th conference on l'interaction homme-machine* (pp. 221–231). **IHM '17**. Poitiers, France: ACM. doi:10.1145/3132129.3132152
- [Work In Progress] **Daniel, M.**, Rivière, G. and Couture, N. (2016). Persuasive interactive systems in public and collective spaces: What role for tangible interfaces ? *Actes de la 28ième conference francophone sur l'interaction homme-machine* (pp. 221–229). **IHM '16**. Fribourg, Switzerland: ACM. doi:10.1145/3004107.3004131
- 8 pages [Long Paper] **Daniel, M.**, Rivière, G., Couture, N. and Kreckelbergh, S. (2016). An analysis of persuasive technologies for energy demand side management. *Actes de la 28ième conference francophone sur l'interaction homme-machine* (pp. 197–210). **IHM '16**. Fribourg, Switzerland: ACM. doi:10.1145/3004107.3004111

Publications in other Peer-Reviewed Communications

- 4 pages [Symposium] Ambrosino, J., **Daniel, M.**, Masson, D. and Legardeur, J. (2017). IdeaBulb: A Smart and Tangible User Interface for Monitoring Ideation During Creative Sessions. *SMART INTERFACES 2017, The Symposium for Empowering and Smart Interfaces in Engineering* (pp. 70–74). **SMART INTERFACES 2017**, The Symposium for Empowering and Smart Interfaces in Engineering. Venice, Italy: Berntzen, L. et al.  <https://hal.archives-ouvertes.fr/hal-01534697>

Research (suite)

[Workshop] **Daniel, M.** (2017). Designing and Evaluating Ambient Tangible Interfaces for Shifting Energy Supply in the Workplace. *3rd European Tangible Interaction Studio. ETIS '17*. Esch/Alzette, Luxembourg. <https://hal.archives-ouvertes.fr/hal-01685710>

[Doctoral Consortium] **Daniel, M.** (2016). Tangible Interfaces as Support for Energy Management. *Rencontres Doctorales de la 28ième conférence francophone sur l'Interaction Homme-Machine. IHM '16*. Fribourg, Switzerland. <https://hal.archives-ouvertes.fr/hal-01685683>

Community

Scientific Committee	Member. <i>5th European Tangible Interaction Studio (ETIS'22).</i>
Scientific Review	International abstract (2 pages). <i>5th European Tangible Interaction Studio (ETIS'22).</i> International long paper (8 pages). <i>14th International Conference on Tangible, Embedded, and Embodied Interactions (TEI'20).</i> National long paper (8 pages). <i>29ème conférence sur l'interaction homme-machine (IHM'17).</i>
Industrial Exhibition	NOVAQ (CairnFORM). <i>September 14, 2018, Bordeaux, France.</i> TechnoDay (CairnFORM). <i>April 4, 2018, Bordeaux, France.</i>
Public Exhibition	24h de l'innovation (CairnFORM). <i>Dec 1, 2017, Biarritz, France.</i>
Science Popularization	Youtube (CairnFORM). See https://www.youtube.com/watch?v=wZ_3CtD11bA and https://www.youtube.com/watch?v=XDaJmj2BntU

Workflow & Skills

1. Understanding	Synthesizing knowledge (Systematic Literature Review).
2. Designing	Ideating (Brainstorming, 9-Windows, Biomimicry), Sketching (Autodesk Sketchbook), Modeling (Autodesk Fusion 360) and Simulating (Unity3D).
3. Prototyping	Manufacturing (3D printing, Laser cutting, Thermoforming), Integrating (Raspberry Pi, Arduino, sensors, actuators), Hardware programming (Python, C), Software programming (C++/QT5, Java/JavaFX, Python/PyQT, C#/Xamarin), Vision programming (C++/OpenCV) and Web programming (Full Stack Django Python, Full Stack MERN Javascript).
4. Experimenting	Gathering Data (structured questionnaires, semi-structured interviews, real-time measurements with sensors) and Computing statistics (R, Python, NumPy, Pandas, SciPy, StatsModels).
5. Reporting	Open sourcing (GitHub, OnShape), Video editing (Adobe After Effect), Paper writing (LaTeX, Word, Markdown) and Talking (English operational, French native).