Dr Ir. Sébastien Combéfis

Lecturer

"The best way to predict the future is to invent it." — *Alan Kay*

Education and Trainings

Jan. 2016–now **Higher Education Teaching Certificate**, *Université catholique de Louvain*, Louvain-la-Neuve, Belgium.

Sep. 2010–Jun. 2014 **Advanced Master in Pedagogy in Higher Education**, *Université catholique de Louvain*, Louvain-la-Neuve, Belgium, Cum Laude.
- Subject: *"Enseigner des outils méthodologiques et former une attitude professionnelle en BAC 1 par un projet disciplinaire : Mise en place et évaluation d'un dispositif d'aide à la réussite"*
- Supervisor: *Prof. Mariane Frenay* and co-supervisor: *Dr. Mireille Houart*.

Sep. 2007–Nov. 2013 **PhD in Engineering**, *Université catholique de Louvain*, Louvain-la-Neuve, Belgium.
- Subject: *"A Formal Framework for the Analysis of Human-Machine Interactions"*
- Examining Board: *Prof. Charles Pecheur, supervisor (UCL/ICTM, Belgium), Prof. Jean Vanderdonckt, secretary (UCL/ILSM, Belgium), Prof. Thierry Massart (ULB, Belgium), Dr Dimitra Giannakopoulou (NASA/ARC, USA), Prof. Philippe Palanque (UPS/IRIT, France) and Prof. Peter Van Roy, chair (UCL/ICTM, Belgium).*

Sep. 2002–Sep. 2007 **Master in Computer Science Engineering**, *Université catholique de Louvain*, Louvain-la-Neuve, Belgium, Magna Cum Laude.
- Subject: *"Viral Marketing and Community Detection Algorithm"*
- Supervisor: *Prof. Pierre Dupont*.

Sep. 1996–Jun. 2002 **General Secondary Education**, *Lycée de Berlaymont*, Waterloo, Belgium, 85%.
Mathematics/Science option.

Trainings

6–7 Jun. 2016 **Security Fundamentals**, *Technobel*, Ciney, Belgium.
Training about IT security to understand threats and attacks in IT systems and how to deal with them.

1st cycle 2010 **From Research To Business** (FR2B), Belgium.
Seven-day training composed of four modules, targeted to researchers who think that their research may lead to the creation of a company.

Sep. 2004 **Teaching monitor Training**, *Louvain School of Engineering*, Louvain-la-Neuve, Belgium.
Training to become student monitor (tutor) to supervise the practical sessions of the *"Introduction to Programming"* course taught to first year bachelors in engineering.

Professional Experiences

Sep. 2014–now **Lecturer**, *École Centrale des Arts et Métiers*, Woluwé-Saint-Lambert, Belgium.
Professor in an industrial higher education institution, in the department of electrical and computer engineering.

Jul. 2017–now	**Head Advisory Board**, *EDITx*, Etterbeek, Belgium.
	Responsible of academic relationships and coordination of the IT challenges themes and jurys.
Sep. 2015–now	**Project Manager**, *École Centrale des Arts et Métiers*, Woluwé-Saint-Lambert, Belgium.
	Project Manager for the TeachEng project working on the development and deployment of a MOOC platform for engineers.
Sep. 2011–Jun. 2015, Jan. 2017–now	**Professor**, *Institut Technique Supérieur Cardinal Mercier*, Schaerbeek, Belgium.
	Professor in a higher education institution in social advancement for the bachelor in informatics and systems and the bachelor in electronics of the Technology Pole.
Sep. 2014–Sep. 2016	**Invited lecturer**, *Université catholique de Louvain*, Louvain-la-Neuve, Belgium.
	Invited lecturer for the programming course for first year bachelor students in engineering and in computer science.
Sep. 2013–May 2014	**Research Assistant**, *Université catholique de Louvain*, Louvain-la-Neuve, Belgium.
	Research assistant for the ICT, Electronics and Applied Mathematics Institute (ICTEAM), attached to the Computer Science Engineering Department (INGI).
Sep. 2013–May 2014	**Educational Advisor**, *Université catholique de Louvain*, Louvain-la-Neuve, Belgium.
	Educational Advisor for the Louvain School of Engineering (EPL).
Oct. 2013—May 2014	**Associate**, *Binnovart*, Belgium.
	Founder and Associate at Binnovart SPRL, a company developing a platform where young artists can meet art investors to catch up and sell and promote their artworks.
Sep. 2007–Sep. 2013	**Teaching Assistant**, *Université catholique de Louvain*, Louvain-la-Neuve, Belgium.
	Teaching assistant for the Louvain School of Engineering (EPL), attached to the Computer Science Engineering Department (INGI).
2004–2006	**Student Monitor**, *Louvain School of Engineering*, Louvain-la-Neuve, Belgium.
	Student monitor (tutor) for the *"Introduction to Programming"* course taught to first year bachelors in engineering.

Non-profit Organisations

Jul. 2012–now	**Founder and President**, *Computer Science and IT in Education ASBL (CSITEd)*, Louvain-la-Neuve, Belgium.
	CSITEd is a non-profit organisation whose goal is to promote computer science at large, especially towards pupils from secondary schools and in the education field.
Sep. 2013–May 2014	**President**, *Corps Scientifique de l'Université catholique de Louvain*, Louvain-la-Neuve, Belgium.
	The *"Corps Scientifique de l'UCL"* (Scientific Body) of the university gathers all the researchers that are not professors. The role of the president is to be the representative of the body in several organs of the university, some of them being decision organs.
Sep. 2011–Sep. 2013	**Treasurer**, *UCLouvain ACM Student Chapter ASBL*, Louvain-la-Neuve, Belgium.
2010, 2011	**Founder and Co-organiser**, *Belgian Olympiad in Informatics*.
	The Belgian Olympiad in Informatics (be-OI) is a programming and algorithmic thinking contest whose goal is to select the Belgian delegation to be sent to the International Olympiad in Informatics (IOI).
Sep. 2009–Sep. 2011	**Founder and President**, *UCLouvain ACM Student Chapter ASBL*, Louvain-la-Neuve, Belgium.
	The UCLouvain ACM Student Chapter is the local chapter of the Association for Computing Machinery (ACM), an international organisation whose goal is to promote computer science.

Publications

Journal Papers

[1] Sébastien Combéfis, Saïkou Ahmadou Barry, Martin Crappe, Mathieu David, Guillaume de Moffarts, Hadrien Hachez, Julien Kessels. Learning and Teaching Algorithm Design and Optimisation Using Contests Tasks. In *Olympiads in Informatics*, **11**:19–28, 2017.

[2] Guillaume Brat, Sébastien Combéfis, Dimitra Giannakopoulou, Charles Pecheur, Franco Raimondi, Neha Rungta. Formal Analysis of Multiple Coordinated HMI Systems. In *The Handbook of Formal Methods in Human-Computer Interaction*, ch. 15, 405–431, 2017.

[3] Guillaume Maudoux, Charles Pecheur, Sébastien Combéfis. Learning Safe Interactions and Full-Control. In *The Handbook of Formal Methods in Human-Computer Interaction*, ch. 11, 297–317, 2017.

[4] Sébastien Combéfis, Gytautas Beresnevičius, Valentina Dagienė. Learning Programming through Games and Contests: Overview, Characterisation and Discussion. In *Olympiads in Informatics*, **10**:39–60, 2016.

[5] Sébastien Combéfis, Dimitra Giannakopoulou, Charles Pecheur. Automatic Detection of Potential Automation Surprises for ADEPT Models. In *IEEE Transactions on Human-Machine Systems*, **46**(2):267–278, 2016.

[6] Sébastien Combéfis, Alexis Paques. Organising National Olympiads in Informatics: a Review of Selection Processes, Trainings and Promotion Activities. In *Olympiads in Informatics*, **9**:15–26, 2015.

[7] Sébastien Combéfis, Jérémy Wautelet. Programming Trainings and Informatics Teaching Through Online Contests. In *Olympiads in Informatics*, **8**:21–34, 2014.

[8] Sébastien Combéfis, Virginie Van den Schrieck, Alexis Nootens. Growing Algorithmic Thinking Through Interactive Problems to Encourage Learning Programming. In *Olympiads in Informatics*, **7**:3–13, 2013.

[9] Sébastien Combéfis, Vianney le Clément de Saint-Marcq. Teaching Programming and Algorithm Design with Pythia, a Web-Based Learning Platform. In *Olympiads in Informatics*, **6**:31-43, 2012.

[10] Sébastien Combéfis, Damien Leroy. Belgian Olympiads in Informatics: The Story of Launching a National Contest. In *Olympiads in Informatics*, **5**:131-139, 2011.

Conference Papers (Peer-Reviewed)

[11] Sébastien Combéfis, Arnaud Schils. Automatic Programming Error Class Identification with Code Plagiarism-Based Clustering. In *Proceedings of the 2nd Int'l Code Hunt Workshop on Educational Software Engineering (CHESE 2016)*, Seattle, WA, USA, November 2016.

[12] Sébastien Combéfis, Chantal Poncin. Web Platform to Support Teaching Programming with Snap! and Manage Pupils' Learning. In *Proceedings of the Scratch Conference 2015*, Amsterdam, The Netherlands, August 2015.

[13] Sébastien Combéfis, Alexis Paques. Pythia reloaded: an Intelligent Unit Testing-Based Code Grader for Education. In *Proceedings of the 1st Int'l Code Hunt Workshop on Educational Software Engineering (CHESE 2015)*, 5–8, Baltimore, MD, USA, July 2015.

[14] Guillaume Maudoux, Sébastien Combéfis, Charles Pecheur. Tasks Decomposition of System Models for Human-Machine Interaction Analysis. In *Proceedings of the Workshop on Formal Methods in Human Computer Interaction (FoMHCI 2015)*, 7–12, Duisburg, Germany, June 2015.

[15] Sébastien Combéfis, Peter Van Roy. Three-Step Transformation of a Traditional University Course into a MOOC: a LouvainX Experience. In *Proceedings of the European MOOCs Stakeholders Summit 2015 (EMOOCs 2015)*, 76–80, Mons, Belgium, May 2015.

[16] Sébastien Combéfis, Fabien Duchêne, Virginie Van Den Schrieck. APP0, ou la découverte du monde universitaire par des compétences techniques au service de l'intégration sociale. In *Proceedings of the 28th Congrès de l'Association Internationale de Pédagogie Universitaire (AIPU 2014)*, Mons, Belgium, May 2014.

[17] Sébastien Combéfis, Dimitra Giannakopoulou, Charles Pecheur. State Event Models for the Formal Analysis of Human-Machine Interactions. In *Proceedings of the Formal Verification and Modeling in Human-Machine Systems AAAI Spring Symposium (FVHMS 2014)*, 15–20, Palo Alto, CA, USA, March 2014.

[18] Sébastien Combéfis, Adrien Bibal, Peter Van Roy. Recasting a Traditional Course into a MOOC by Means of a SPOC. In *Proceedings of the European MOOCs Stakeholders Summit 2014 (EMOOCs 2014)*, 205–208, Lausanne, Switzerland, February 2014.

[19] Sébastien Combéfis, Charles Pecheur. Automatic Generation of Full-Control System Abstraction for Human-Machine Interaction. In *Proceedings of the Workshop on Formal Methods in Human-Machine Interaction (Formal H)*, 9–11, London, UK, May 2012.

[20] Jim Plumat, Chantal Poncin, Delphine Ducarme, Sébastien Combéfis. Passer d'un « Service d'Aide à la Réussite » à des « Ateliers de Formation Professionnelle » ou comment passer d'un SAR, une béquille ? - à un AFP, un piolet !. In *Proceedings of the 27th Congrès de l'Association Internationale de Pédagogie Universitaire (AIPU 2012)*, Trois-Rivières, QC, Canada, May 2012.

[21] Sébastien Combéfis, Dimitra Giannakopoulou, Charles Pecheur, Peter Mehlitz. A JavaPathfinder Extension to Analyse Human-Machine Interactions. In *Proceedings of the Java Pathfinder Workshop 2011*, Lawrence, KA, USA, November 2011.

[22] Sébastien Combéfis, Dimitra Giannakopoulou, Charles Pecheur, Michael Feary. Learning System Abstractions for Human Operators. In *Proceedings of the 2011 International Workshop on Machine Learning Technologies in Software Engineering (MALETS 2011)*, 3–10, Lawrence, KA, USA, November 2011.

[23] Sébastien Combéfis, Dimitra Giannakopoulou, Charles Pecheur, Michael Feary. A Formal Framework for Design and Analysis of Human-Machine Interaction. In *Proceedings of the 2011 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2011)*, 1801–1808, Anchorage, AK, USA, October 2011.

[24] Sébastien Combéfis, Charles Pecheur. A Bisimulation-Based Approach to the Analysis of Human-Computer Interaction. In *Proceedings of the ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS 2009)*, 101–110, Pittsburgh, PA, USA, July 2009.

[25] Sébastien Combéfis. Formal Analysis of Human-Automation Interaction. In *Proceedings of the 8th International Summer School on MOdelling and VErifying parallel Processes (MOVEP 2008)*, Orléans, France, June 2008.

Presentations

[26] Sébastien Combéfis, Corentin Vande Kerckhove, Peter Van Roy. Transforming a University Course into a Two-public Sustainable MOOC. Presented at the *HybridEd Workshop: MOOC-based Models for Hybrid Pedagogies (HybridEd 2015)*, Toledo, Spain, September 2015.

[27] Sébastien Combéfis, Chantal Poncin. Intégration d'un service d'aide à la réussite dans un programme d'étude, ou comment passer d'un SAR à un cours dans un programme, en passant par un atelier de formation professionnelle. In *Proceedings of the 28th Congrès de l'Association Internationale de Pédagogie Universitaire (AIPU 2014)*, Mons, Belgium, May 2014.

[28] Sébastien Combéfis. Operational Model: Integrating User Tasks and Environment Information with System Model. In *3rd International Workshop on Formal Methods for Interactive Systems (FMIS 2009)*, Eindhoven, The Netherlands, November 2009.

Posters

[29] Sébastien Combéfis, Marie-Françoise Lefebvre, Quentin Lurkin, Cédric Marchand et Philippe Melotte. TeachEng, a Multi-Paradigm MOOCs Provider Platform to Teach Future Engineers. In *Proceedings of the European MOOCs Stakeholders Summit 2016 (EMOOCs 2016)*, 521–525, Graz, Austria, February 2016.

[30] Sébastien Combéfis, Jean-François Rees. The LouvainX Courses: Selection, Support and On-campus Activities. Poster presented at *edX Consortium Meeting*, Boston, MA, USA, November 2013.

[31] Sébastien Combéfis, Adrien Bibal, Peter Van Roy. Recasting a Traditional Course into a MOOC by Means of a SPOC. Poster presented at *edX Consortium Meeting*, Boston, MA, USA, November 2013.

[32] Sébastien Combéfis, Charles Pecheur. LTS-Based Analysis of Interactive Systems. Poster presented at *the MoVES Annual Meeting*, Louvain-la-Neuve, Belgium, December 2009.

Books

[33] Sébastien Combéfis, Quentin Lurkin. Apprendre Python et s'initier à la programmation, Louvain-la-Neuve, Belgium, September 2016.

[34] Sébastien Combéfis, Alexis Nootens. Bases des mathématiques et préparation à l'enseignement supérieur : Formules et concepts, Louvain-la-Neuve, Belgium, July 2016.

[35] Sébastien Combéfis, Georges-Henri Leclercq, Loïc Fortemps de Loneux, Adrien Bibal, Virginie Van den Schrieck (Eds). Bebras Belgium : Recueil de questions édition 2013, Louvain-la-Neuve, Belgium, Juillet 2013.

[36] Sébastien Combéfis. LATEX HowTo : Le Guide Pratique, Louvain-la-Neuve, Belgium, October 2014.

[37] Sébastien Combéfis, Jérémy Wautelet, Georges-Henri Leclercq, Adrien Bibal, Virginie Van den Schrieck (Eds). Bebras Belgium : Recueil de questions édition 2012, Louvain-la-Neuve, Belgium, November 2013.

[38] Sébastien Combéfis. LATEX HowTo, Louvain-la-Neuve, Belgium, December 2010.

Theses

[39] Sébastien Combéfis. Enseigner des outils méthodologiques et former une attitude professionnelle en BAC 1 par un projet disciplinaire : Mise en place et évaluation d'un dispositif d'aide à la réussite. Advanced Master Thesis. Université catholique de Louvain, Belgium, June 2014.

[40] Sébastien Combéfis. A Formal Framework for the Analysis of Human-Machine Interactions. PhD thesis. Université catholique de Louvain, Belgium, November 2013.

[41] Sébastien Combéfis, Jean Miller. Viral Marketing and Community Detection Algorithm. Master thesis. Université catholique de Louvain, Belgium, June 2007.

Scientific Activities

Presentation at conferences and workshops

14 Nov. 2016 **2nd Int'l Code Hunt Workshop on Educational Software Engineering** (CHESE 2016), Seattle, WA, USA.

22–24 Feb. 2016 **2016 European MOOCs Stakeholders Summit** (EMOOCs 2016), Graz, Austria.

18 Sep. 2015 **HybridEd: MOOC-based Models for Hybrid Pedagogies** (HybridEd 2015), Toledo, Spain.

12–15 Aug. 2015 **Scratch Conference 2015**, Amsterdam, The Netherlands.

14 Jul. 2015 **1st Int'l Code Hunt Workshop on Educational Software Engineering** (CHESE 2015), Baltimore, MD, USA.

18–20 May 2015 **2015 European MOOCs Stakeholders Summit** (EMOOCs 2015), Mons, Belgium.

15, 17 Jul. 2014	**8th IOI Conference**, Taipei, Taiwan.
18–22 May 2014	**28ème Congrès de l'Association Internationale de Pédagogie Universitaire** (AIPU 2014), Mons, Belgium.
24–26 Mar. 2014	**Formal Verification and Modeling in Human-Machine Systems AAAI Spring Symposium** (FVHMS 2014), Palo Alto, CA, USA.
10–12 Feb. 2014	**2014 European MOOCs Stakeholders Summit** (EMOOCs 2014), Lausanne, Switzerland.
8, 10 Jul. 2013	**7th IOI Conference**, Brisbane, Australia.
15 May 2013	**Première journée du Corps Scientifique de l'UCL**, Louvain-la-Neuve, Belgium.
27 Sep. 2012	**6th IOI Conference**, Montichiari, Italy.
28 May 2012	**Workshop on Formal Methods in Human-Machine Interaction** (Formal H), London, UK.
14–18 May 2012	**27ème Congrès de l'Association Internationale de Pédagogie Universitaire** (AIPU 2012), Trois-Rivières, QC, Canada.
12–13 Jan. 2012	**ACM Europe Chapter Workshop**, Paris, France.
9–12 Oct. 2011	**2011 IEEE International Conference on Systems, Man, and Cybernetics** (SMC 2011), Anchorage, AK, USA.
24,26 Jul. 2011	**5th IOI Conference**, Pattaya, Thailand.
17–18 Dec. 2009	**8th BElgian-NEtherlands software eVOLution seminar** (BENEVOL 2009), Louvain-la-Neuve, Belgium.
2 Nov. 2009	**3rd International Workshop on Formal Methods for Interactive Systems** (FMIS 2009), Eindhoven, The Netherlands.
14–17 Jul. 2009	**ACM SIGCHI symposium on Engineering Interactive Computing Systems** (EICS 2009), Pittsburgh, PA, USA.
28 May 2008	**Annual meeting of the FNRS Contact group on Fundamental Computer Science**, Namur, Belgium.

Visits

30 May–15 Jul. 2011	**Visiting researcher**, *NASA Ames Research Center*, Mountain View, CA, USA. Working with Dr Dimitra Giannakopoulou (Intelligent Systems Division) and Dr Michael Feary (Human Systems Integration Division) on the *"Automation Design Tool Support"* project.
23 Aug.–18 Sep. 2010	**Visiting researcher**, *NASA Ames Research Center*, Mountain View, CA, USA. Invited by Dr Dimitra Giannakopoulou to work on the *"Model Checking for Human-Machine interfaces, adapting diagnosability to mode confusion, and focus on compositional verification"* project.

Organised events

23 Feb. 2017	**Google Hash Code 2017**, *ECAM Brussels Engineering School Hub*, Woluwé-Saint-Lambert, Belgium.
17 Nov. 2011	**LVL HMI Meeting 2011**, Louvain-la-Neuve, Belgium. Meeting organised by the LVL research group that I worked for as a PhD Student, on the theme *"Models and Tools for Human-Machine Interaction"*.
16 Dec. 2009	**Annual meeting of the FNRS Contact group on Fundamental Computer Science**, Louvain-la-Neuve, Belgium.

Participation (conference, workshop, tutorial...)

25 May–2 Jun. 2017	**13th International Bebras Task Workshop**, Brescia, Italy.
23 Feb. 2017	**Google Hash Code 2017**, *Online Qualification Round*, Woluwé-Saint-Lambert, Belgium.
25–29 May 2015	**11th International Bebras Task Workshop**, Sankt-Pölten, Austria.
19–24 Apr. 2015	**IOI Workshop 2015**, Bitola, Republic of Macedonia.
24–26 Nov. 2013	**edX Consortium Meeting**, Boston, MA, USA.

21–22 Nov. 2013	**Euraxess Conference: Raising Researchers' Voices – Opinions on Job, Careers and Rights**, Brussels, Belgium.
28–30 Jun. 2013	**9th International Bebras Task Workshop**, Toruń, Poland.
29 May–3 Jun. 2012	**8th International Bebras Task Workshop**, Druskininkai, Lithuania.
9 Oct. 2011	**2011 IEEE International Conference on Systems, Man, and Cybernetics** (SMC 2011), Anchorage, AK, USA. Participation to the tutorial: Model-Based Systems Engineering (Prof. Dov Dori).
5–6 May 2011	**Fifth GASICS Meeting**, Mons, Belgium.
20–24 Sep. 2010	**25th IEEE/ACM International Conference on Automated Software Engineering** (ASE 2010), Antwerpen, Belgium. Participation to the tutorial T5: Automated Component-Based Verification (Dr Dimitra Giannakopoulou).
2–6 Nov. 2009	**16th International Symposium on Formal Methods** (FM 2009), Eindhoven, The Netherlands.
25–26 Aug. 2008	**Automata and Verification Workshop**, Mons, Belgium.
23–27 Jun. 2008	**MOdelling and VErifying parallel Processes summer school** (MOVEP 2008), Orléans, France.
25 Feb. 2008	**Research seminar on Software Evolution** (Evol@Mons 2008), Mons, Belgium.

Miscellaneous

2017	**Program co-chair**, 3rd Int'l Coding and Human aspects of Educational Software Engineering (CHESE 2017).
2016	**Program committee**, 2nd Int'l Code Hunt Workshop on Educational Software Engineering (CHESE 2016).
2015	**Program committee**, 1st Int'l Code Hunt Workshop on Educational Software Engineering (CHESE 2015).
2014	**Reviewer**, IEEE Transactions on Human-Machine Systems.
2013	**Reviewer**, 5th NASA Formal Methods Symposium (NFM 2013).
2013	**Reviewer**, 5th ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS 2013).
2012	**Reviewer**, 4th NASA Formal Methods Symposium (NFM 2012).
2012	**Program Committee**, Workshop on Formal Methods in Human-Machine Interaction (Formal H).
2012	**Technical Paper Reviewer**, 2011 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2011).
2011	**Checking Human Machine Interactions**, The Java Pathfinder Team. Google Summer of Code 2011
2010	**Checking Human Machine Interactions**, The Java Pathfinder Team. Google Summer of Code 2010

Teaching

Taught Courses at ECAM

2014–now (3 years)	**B2010 - Informatique**, *Second year bachelor students in engineering*. This course is about programming in Python and teaches advanced data structures (set, dictionaries and tuples), object oriented programming basics, event-based programming and GUI development with Kivy, error handling and exceptions, text and binary files reading and writing. It also explains how the internet works and introduces to HTML, CSS and JavaScript and how to develop a simple website with the CherryPy web framework.

2015–now
(3 years)

B2160 - Projet informatique, *Second year bachelor students in electronics and in computer science engineering*.

This course presents advanced programming concepts with the Python language. It presents project management tools (Git, Travis, Heroku...), regular expressions, network programming (socket, TCP client/server, UDP peers), concurrent programming (process and thread), functional programming. It also introduces algorithmic with recursion, trees, search algorithms and backtracking for AI. Finally, it introduces to numerical methods with Octave and with the Scipy library.

2016–now
(2 years)

E3020 - Électronique et programmation des systèmes embarqués, *Third year bachelor students in electronics and in computer science engineering*.

This course presents the three main components of an embedded system: energy management, an intelligent electronic unit and peripherals. The course presents how to build an embedded system through the design and the construction of a robot application. In particular, it teaches how to program embedded systems.

2014–now
(3 years)

M3090 - Techniques informatiques, *Third year bachelor students in electromechanical engineering*.

This course, taught to students in third year of bachelor in electromechanical engineering, presents how to analyse and develop a computer application using modelisation (UML), simple databases and queries (Microsoft Access) and object oriented programming (C#).

2014–now
(3 years)

I4030 - Technologie des ordinateurs et systèmes d'exploitation, *First year master students in electronics and in computer science engineering*.

This course presents how a computer works, from the very low hardware level to the very high level architecture and organisation. It also presents how it can be operated with an operating system and its components (processes and threads, scheduling, deadlock, memory management, filesystem, mass storage, security...).

2016–now
(1 year)

I4040 - Base de données avancées, *First year master students in computer science engineering*.

This course presents advanced concepts in databases and how to manage them (distributed databases, transactions, optimisation...). It also introduces to NoSQL and in particular to document-based databases and how to combine them with relational databases in applications.

2014–now
(3 years)

I4020 - Architecture logicielle, *First year master students in computer science engineering*.

This course presents how to architecture a software at different levels from the structure of the code to organisation of software components.

2017–now
(1 year)

I5020 - Systèmes distribués, *Second year master students in computer science engineering*.

This course presents what a distributed system is and how it works. It also presents how to build and secure such a system, both physically and with softwares.

2015–now
(3 years)

I5030 - Séminaires professionnels, *Second year master students in electronics and in computer science engineering*.

This course is a seminar where the students are asked to prepare and present, in English, a subject related to engineering or to their master thesis to share their experience. Students are also asked to attend external events they have to found by themselves and report about what they learned to the other students.

2016
(1 year)

B1070 - Projet intégrateur, *First year bachelor students in engineering*.

This course is a project where the students have to work on a multidisciplinary project by teams of six. For example, in 2016, they had to develop an automated distributor controlled by an Arduino and using an RFID tag.

2015
(1 year)

B1080 - Électricité et ses outils mathématiques, *First year bachelor students in engineering*.

This course is about electromagnetism and circuits theory. It also presents the necessary mathematical tools: functions with multiple variables, complex numbers, vectors, multiple integrals...

2015–2016
(2 years)

JA40I - Programmation distribuée, *First year master students in electronics and in computer science engineering*.

This course is a project where the students have to develop a 3-tiers home automation application to manage a concrete model of a house. They also have an activity about object oriented programming with Java.

Taught Courses at ITSCM

2017–now
(1 year)
2261.11.U31.D1 : Transmission numérique, *Third year bachelor students in informatics and systems and in electronics*.
This course presents how to identify and analyse digital transmission with the specific circuits and needed protocols. Students have an opportunity to design and develop a complete sensor-based system with data transmission during the laboratory.

2011–2014
(4 years)
7560.42.U31.D1 : Informatique appliquée aux sciences et aux technologies : Bases de la programmation, *Second year bachelor students in informatics and systems*.
This course teaches basic programming concepts: multidimensional arrays, embedded loops, boolean and characters, decomposition in procedures and functions, file manipulation...

2013–2015
(3 years)
2982.21.U31.D1 : Initiation aux bases de données, *First year bachelor students in informatics and systems and in electronics*.
This course is an introduction to databases and presents DataBase Management System (DBMS), relational databases, Structured Query Language (SQL), primary keys and views, table joins, data importation and exportation...

Trained Courses at UCL

2004–2011
(8 years)
LFSAB1401 - Informatique 1, *First year bachelor students in engineering*.
That course teaches the basics of object oriented programming, using the Java programming language. Students are discovering notions of programming, objects, classes, arrays, composition and inheritance, graphical interface, files and linked data structures.

2007–2011
(5 years)
LSINF1160 - Introduction à l'Algorithmique et Programmation, partie 1, *First year bachelor students in computer science*.
That course teaches the basics of algorithmic and programming, mainly using the Java programming language. Students are discovering algorithmic, representation of numbers, the notion of machine code and algorithms on arrays.

2008, 2010–2011
(3 years)
LINGI2143 - Concurrent Systems: Models and Analysis, *Master students in computer science and in computer science engineering*.
In that course, students are learning the theory of concurrent systems. They are taught how to model such systems and how to make analysis (deadlock, reachability, safety and liveness properties). Students have to realise three small projects with LTS models (LTSA) and petri nets (pipe).

2008–2010
(3 years)
LINGI2132 - Langages et Traducteurs, *First year master students in computer science and in computer science engineering*.
In that course, students are learning the theory of automata, languages and compilation. Students have to realise a project which consists in the development of a compiler or interpreter for a language that they define, using a LL(1) or WP syntactic analyser.

2007 (1 year)
LSINF1121 - Algorithmique et Structures de Données, *Third year bachelor students in computer science and in computer science engineering*.

2007 (1 year)
LGBIO2010 - Bioinformatique, *Master students in computer science and in computer science engineering*.

2012 (1 year)
LSINF1151 - Laboratoire; Résolution Informatique de Problèmes, *First year bachelor students in computer science*.

2012 (1 year)
LSINF1101 - Introduction à la programmation, *First year bachelor students in computer science*.

2012 (1 year)
LSINF1102 - Résolution informatique de problèmes, *First year bachelor students in computer science*.

Trainings

Fall 2017
Digitalent Coach, *CERDECAM*, Woluwé-Saint-Lambert, Belgium.
Technical coach for the eight-week Digitalent training organised by the Proximus Foundation, for the Schaerbeek session at La Lustrerie (teaching 3D printing and Arduino programming).

Spring 2014
(1 year)
Trainer, *LSM Conseil*, Louvain-la-Neuve, Belgium.
Trainer for a course about the LATEX professional typesetting system.

Summers 2011–2013 (3 years)	**Trainer**, *Faculty of Science*, Louvain-la-Neuve, Belgium. Trainer for the summer courses in physics organised for the future university students, giving the module on optics (in particular the interference phenomenon).

Service to Society and Representation

2011–now	**Representative of Belgium for the Bebras Contest**. Coordinator for the Bebras contest in Belgium and representative for Belgium at the international level (namely participating to the annual International Bebras Task Workshop).
2010–2014	**Representative for the Scientific Staff of the Université catholique de Louvain** (CORSCI), Louvain-la-Neuve, Belgium. - 2012–2013 (1 year), *Vice-President for the Science and Technology Sector of the Scientific Staff of the Université catholique de Louvain (CORSCI)*. - 2010–2013 (3 years), *President* and 2013–2014 (1 year), *Member of the Association of the scientific staff of the Louvain School of Engineering (ACSEP)*. - 2010–2012 (2 years), *Vice-President for External Matters* and 2012–2013 (1 year), *President* and 2013–2014 (1 year), *Vice-President for Internal Matters of the Association of the Scientific staff of the ICT, Electronics and Applied Mathematics Institute (AsCII)*.
2013–2014	**Member of the MOOCs@UCL Steering Committee**. Member of the committee which is steering the MOOC phenomenon at Université catholique de Louvain and coordinating the LouvainX initiative (UCL courses on the edX platform).
2010	**Deputy Leader**, *22nd International Olympiad in Informatics (IOI 2010)*, Waterloo, ON, Canada. Representative for Belgium at the International Olympiad in Informatics, that is, accompanying the four Belgian contestants.

Other Activities

19 Oct. 2017	**Business Visitor**, *Digital First 2017*, Brussels, Belgium.
25 Feb. 2017	**Visitor**, *Virtuality 2017*, Paris, France.
13–20 Jul. 2014	**Guest**, *26th International Olympiad in Informatics (IOI 2014)*, Taipei, Taiwan.
Feb.–May 2014	**Internship Supervisor**, *Supervising a 3rd year bachelor student from EPHEC working for CSEDL[2] at Université catholique de Louvain*, Louvain-la-Neuve, Belgium.
26 Oct. 2013	**Guide**, *Benelux Algorithm Programming Contest (BAPC 2013)*, Utrecht, The Netherlands.
6–13 Jul. 2013	**Guest**, *25th International Olympiad in Informatics (IOI 2013)*, Brisbane, Australia.
Jun. 2010, Jun. 2012	**Reader for Thesis of Bachelor in Business Computing**, *Institut Paul Lambin (IPL)*, Brussels, Belgium.
15–16 Jun. 2012	**Invited Student Scholar**, *ACM A.M. Turing Centenary Celebration*, San Francisco, CA, USA.
22–29 Jul. 2011	**Guest**, *23rd International Olympiad in Informatics (IOI 2011)*, Pattaya, Thailand.
Feb.–Mar. 2011	Participation to the sessions of the Agile Campus Tour, Louvain-la-Neuve, Belgium
27–29 Sep. 2010	**Visitor**, *ICT 2010: Digitally Driven*, Brussels, Belgium.

Projects

Jan. 2012–now	**Pythia**. The Pythia project consists in developing an online learning platform for programming. The platform supports automatic correction of submitted programs, and generates intelligent feedbacks to support learning. In addition to the pure development of the platform, the project also consists in creating a set of lessons meant to be used in secondary schools. The project is realised with CSITEd and the Université catholique de Louvain.

Jan. 2013–now	**ILPADS**.
	The ILPADS project consists in developing an interactive online platform to develop programming and algorithm design skills. The platform is mainly targeted to secondary school pupils, but is meant to be used by people at large. The goal of the platform is to grow algorithmic thinking and then drive them to the learning of the Python programming language. The project is realised with CSITEd.
Mar. 2014–now	**MCP**.
	The MCP project consists in developing a platform where contestants can set up a public profile with their performances on various contests in order to compare themselves with others.
Sep. 2011–Dec. 2011	**METIER**.
	The METIER project consists in creating a new scheme to help bachelor students to succeed their first year at university. The project was about to develop a new course targeted to computer science students, to teach them soft-skills and work methodology to help them for their future work but also their current job which is to be students.

Awards and Recognitions

2011	**Best Paper**.
	For the *"Learning System Abstractions for Human Operators"* paper submitted at the 2011 International Workshop on Machine Learning Technologies in Software Engineering conference (MALETS 2011).
2011	**ACM 2010–2011 Student Chapter Excellence Award**.
	Award received for the *Outstanding Chapter Activities* of the UCLouvain ACM Student Chapter.

Certifications

Jul. 2017 – now	**Marketing Digital**, *Google*.
Sep. 2015 – now	**DAT204x Introduction to R**, *edX*.
Jul. 2015 – now	**HTML5.1x Learn HTML5 from W3C**, *edX*.
Jan. 2015 – now	**Louv1.2x Paradigms of Computer Programming - Abstraction and Concurrency**, *edX*.
Nov. 2014 – now	**Louv1.1x Paradigms of Computer Programming - Fundamentals**, *edX*.
Oct. 2014 – now	**World101x Anthropology of Current World Issues**, *edX*.
Aug. 2014 – now	**ATOC185x Natural Disasters**, *edX*.
May 2014 – now	**AE1110x Introduction to Aeronautical Engineering**, *edX*.
May 2014 – now	**UT.9.01x Effective Thinking Through Mathematics**, *edX*.
Apr. 2014 – now	**Louv3.01x Découvrir la science politique**, *edX*.
Nov. 2012 – now	**Functional Programming Principles in Scala**, *Coursera*.

Professional Affiliations

2013–now	**Association Internationale de Pédagogie Universitaire (AIPU)**, *Member*.
2009–now	**Association for Computing Machinery (ACM)**, *Member*.
2009–now	**Institute of Electrical and Electronics Engineers (IEEE)**, *Member*.

Other

2007–now	**Alumni Ingénieurs Louvain (AILouvain)**, *Member*.
2002–now	**Association des Anciens Élèves du Lycée de Berlaymont**, *Member*.

Languages

French	Proficiency	*Mother tongue, C2 level*
English	Upper intermediate	*B2 level*
Other	Dutch (Intermediate, B1 level), Mandarin Chinese (Elementary, A2 level), Spanish and Japanese (Beginner, A1 level)	

Computer skills

Operating systems	macOS, Linux, Windows
Programming	Java, C, Python, XHTML/CSS, Javascript, LaTeX, Matlab, PHP, SQL, C#, R, Go, Shell, Visual Basic
Libraries	jQuery, Node.js, MEAN.js
Programming tools	Eclipse, Sublime Text, Gnuplot
Office	OpenOffice, Microsoft Office (Word, Excel, PowerPoint, Access)
Versioning	Git, Subversion
Other tools	Evernote, XMind, The Gimp

Media Coverage

11 Jul. 2013	Interview by *IOI 2013* Reporter during the IOI conference.
17 Apr. 2013	Interview by the newspaper *Le Soir* for CSITEd and the Bebras Contest.
14 May. 2010	Interview by the local television channel *TVCom* for the final of the first edition of the Belgian Olympiad in Informatics.
7 May. 2010	Interview by the specialised paper magasine *Data News* for the UCLouvain ACM Student Chapter.
10 Mar. 2010	Interview by the newspaper *Vers l'Avenir Brabant Wallon* for the Belgian Olympiad in Informatics.