



Curriculum Vitae

Personal information **Alain Delchambre**

Work experience

01/07/1994 – CURRENT – Brussels, Belgium

FULL PROFESSOR - HEAD OF THE BIO, ELECTRO AND MECHANICAL SYSTEMS (BEAMS) DEPARTMENT - SCHOOL OF ENGINEERING – Université libre de Bruxelles

Lectures :

- Classical mechanics (5 ECTS),
- Manufacturing technologies (1 ECTS),
- Design methodology (5 ECTS),
- Biomedical projects (5 ECTS).

Research :

- Responsible for a research unit in Computer Assisted Design (1994 - 2004) and, since 2004, in the design and manufacture of medical devices (10 researchers) and since 2018, Director of the BEAMS (Bio, Electro And Mechanical Systems - 120 people)
- The research unit is funded by national and international projects. Among the international partners: Schneider Group, Dassault Systems, Cranfield University, Lausanne Federal Polytechnic School, Franche-Comté University, University of Stuttgart.
- An agreement has been reached between my research laboratory and Boston Scientific. This partnership, unique in Europe, establishes a priority to test Boston Scientific's new products in our laboratory and conversely, our inventions will be tested by the Boston Research Department. These exchanges are covered by intellectual property 50% owned by ULB and 50% by Boston Scientific.
- Promoter of more than a hundred final dissertations and 10 defended doctoral theses.
- Member of the jury of numerous theses in Belgium, France, England and Switzerland.

Projects

- Design and manufacturing:
 - tool to interactively design products and their assembly systems,
 - methods and means of miniaturization of machines,
 - disassembly for the recycling of manufactured products: photocopiers, computers, household appliances.
- **Optimization:**
 - genetic algorithms, a new optimization method applied to 2D and 3D bin packing problems,
 - optimizing bulk transport routing in a dynamic multi-deposit context,
 - design and development of a computer-assisted method for the placement of integrated circuit components,
 - computer-aided design of the layout of gas cylinder filling and storage sites.

· **Medical devices:**

- design and manufacture of a radiofrequency surgical tool for the treatment of liver tumors,
- design and manufacture of microneedle networks for painless injection,
- design, realization and marketing of an endoscopic surgery instrument,
- force feedback in endoluminal endoscopy,
- developing an innovative guide to facilitate the selection of bilio-pancreatic ducts,
- study of the mechanical anchoring and placement tool of an endoluminal implantable electrostimulator,
- design of an endoscopic transmural suture system.

· **Creating a spin-off companies:**

- Optimal design (1999): optimization of assembly lines,
- Endotools therapeutics (2009): natural treatment of obesity,
- Amia systems (2014): optimization of layout of manufacturing companies,
- Noho (2015): treatment of lymphatic edema by instrumented bandages,
- Lys medical (2018): optical systems for dimensional measurement in vivo.

15/09/2006 – 15/09/2010 – Brussels, Belgium

**DEAN OF THE SCHOOL OF ENGINEERING (ECOLE
POLYTECHNIQUE DE BRUXELLES)**

– Université libre de Bruxelles

Transformation of the Ecole Polytechnique's pedagogical practices:

- introduction of project-based learning,
- setting up an Educational Support Office,
- development of BA1 success aid: basic knowledge courses, personalized coaching,
- introduction of long-term internships in collaboration with companies,
- Corporate-sponsored chairs,
- developing a competency repository,
- coordination of collaboration between the 4 engineering schools of the Wallonia-Brussels Federation (UCL, ULB, ULg, UMONS) to achieve CTI accreditation for our master's programs.

Developing partnerships for educational programs:

- with the Faculty of Science, a joint master's degree in computer science,
- with the Faculty of Medicine, a master's degree in biomedical engineering,
- with the Solvay Brussels School of Economics and Management, a joint master's degree in management and technology,
- with the VUB (University of Dutch-speaking Brussels): 5 joint masters in English as part of the BRUFACE (Brussels Faculty of Engineering) programme.

Development of initiatives to promote research:

- welcoming new researchers,
- young researchers workshop: annual meeting of all the researchers of the School around poster sessions,
- researcher training,
- research introductory scholarships to raise students' awareness of research,
- consolidating services into research departments,
- real estate project of a new science and technology building.

Development of the mission of services to society:

- setting up a 'cooperation and development' cell,
- development of actions towards secondary education:
 - Young engineers workshops,
 - Robotic club,
 - Shell ecomarathon.
- Research enhancement: more than half of ULB's spin-offs are now from the Ecole Polytechnique.

01/01/2011 – 30/09/2014 – Brussels, Belgium

PRESIDENT OF THE BOARD – Université libre de Bruxelles

In terms of governance: I piloted an ambitious reform plan which made it possible to fundamentally transform the governance of the university.

The essential achievements of this reform are:

- improving governance at the top of the institution,
- strengthening democratic control over all responsible functions,
- the search for an optimal link between political and administrative authorities,
- increased accountability of all stakeholders,
- administrative decentralization and strengthening of transversality.

On the financial plan:

- the university's accounts (250 million euros annual budget) have come back and kept in balance. External funds have enabled the real estate development of the campuses as well as the financing of spin-offs,
- an internal audit unit was set up, in particular, to control the financial flows of all the departments,
- an investment fund in spin-offs was created and endowed with 20 million euros (10 million in public capital and 10 million in private capital).

In terms of real estate:

- a master plan for the development of the Brussels campuses has been drawn up:
 - o 'health' campus: construction of an auditorium with 900 seats and development of the hospital complex,
 - o 'science and technology' campus: construction of a library & learning center, a building for scientists and engineers and an international student center. The library & learning center and the international student city are financed by external funds.
- 'human sciences' campus: the existing buildings will be renovated.
- a student housing plan was designed and implemented: construction or agreement of more than 2,500 housing units (in 2010, the ULB managed 1,700 housing units, it will have 4,200 in 2017),
- study rooms have been set up on each of the 3 Brussels campuses,
- environmental management and campus mobility has been implemented.

In terms of human resources management:

- a vast human resources management improvement program has started which will:
 - o clarify administrative functions,
 - o develop the staff training offer,
 - o develop the evaluation,
 - o strengthen possibilities for temporary and / or permanent mobility.

In terms of the academic hospital:

- plan to build and finance a new hospital,
- reconditioning of the old hospital into student accommodation,
- strengthening of partnerships with public hospitals in the City of Brussels and hospitals in the province of Hainaut.

01/01/1987 – 30/06/1994 – Brussels, Belgium

HEAD OF THE DEPARTMENT "DESIGN, METHODS AND ASSEMBLY EQUIPMENT" – C

RIF (Metal Manufacturing Industry Research Centre) - Industrial automation section

Design and development of a computer-aided assembly system design system

01/07/1983 – 31/12/1986 – Tournai, Belgium

HEAD OF THE MACHINE AUTOMATION DEPARTMENT – Ateliers SCHLUMPF (SME)

active in the design and manufacture of stainless steel equipment)

Projects:

- Automation of dyeing machines,
- Control systems for the preparation of liquid adjuvants,
- Automated glue preparation for the manufacture of paper bags,
- Automation of cranes,
- Automation of brewery filters,
- Industrial networks,
- Robotization of a welding application of nuclear fuel storage tubes,
- Automation of dyeing machines by PLCs.

Education and training

15/09/2014 – 15/09/2015 – Avenue F.D. Roosevelt, 50 , Brussels, Belgium

**MASTER IN MANAGEMENT HEALTHCARE INSTITUTIONS –
Université libre de Bruxelles -
Solvay Brussels School of Economics and Management**

01/01/1987 – 30/06/1990 – Avenue F.D. Roosevelt, 50, Brussels, Belgium

PHD IN ENGINEERING SCIENCE – Université libre de Bruxelles

15/09/1983 – 30/06/1985 – Avenue F.D. Roosevelt, 50, Brussels, Belgium

**MASTER IN ROBOTICS ENGINEERING – Université libre de
Bruxelles**

15/09/1978 – 30/06/1983 – Avenue F.D. Roosevelt, 50, Brussels, Belgium

**MASTER IN ELECTRO-MECHANICAL ENGINEERING –
Université libre de Bruxelles**

Additional information

Publications

Projects

Memberships

Other Relevant Information