

## Philippe Wenger

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CNRS Research Director  
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### ***Current position***

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CNRS Research Director at IRCCyN (Institut de Recherches en Cybernétique et Communications de Nantes). Head of the Robotics team (52 people). Professor at Ecole Centrale de Nantes and Ecole Supérieure d'Electricité.

### ***Education***

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Engineer in Mechanics and informatics, Ecole Centrale de Nantes, France (1985)  
Ph.D. in Automatics and Robotics, University of Nantes, France (1989)  
HdR, University of Nantes, France (1998)  
Professor qualification (2000)

### ***Research interests***

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Innovative design of robots, kinematic analysis of complex mechanisms, trajectory optimisation

### ***Teaching***

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Optimal Kinematic Design of Robots, Master of Science II, Erasmus Mundus EMARO  
Design of Robotic sites, Ecole Centrale de Nantes  
Mechanics and Robotics, Ecole Supérieure d'Electricité

### ***Career***

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Assistant Professor in Mechanical Engineering at ENSM, Nantes (1989-1990)  
CNRS Researcher at LAN (1990-2002)  
CNRS Research Director at IRCCyN (2002-...)  
Professor in charge of Master Design of Products and Systems, Applied mechanics (2004-2008)  
Visiting Professor, Laval University (Québec, Canada) in 2001  
Visiting Professor, Lomonossov University (Moscow, Russia) in 2003  
Visiting Professor, ITLag (Torreon, Mexico) in 2004  
Visiting Professor, ENISO (Monastir, Tunisia) in 2009  
Visiting Professor, Keio University (Tokyo, Japan) in 2010  
Visiting Professor, AIT, School of Engineering and Technology (Bangkok, Thailand) in 2012  
Head of CMAO team at LAN (1998-2002)  
Head of MCM team at IRCCyN (2002-2011)  
Head of Robotics team at IRCCyN (2011-...)

### ***Honors and awards***

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Best Theoretical Research Paper Award Finalist, EUCOMES'2012  
AFCET/CNRS award for the best PhD thesis of the year (1990)

### ***Professional activities***

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Associate Editor, ASME J. Mech. And Robotics (2012- ...)  
Associate Editor, Mechanisms and Machine Theory (2009- ...)  
Associate Editor, Problems of Mechanics (2004-2008)  
Vice Chair, IFToMM Technical Committee "Computational Kinematics"  
Chair, research group "Mechatronic and Innovative Design of Robots" of the CNRS Robotics Research Committee (GDR-Robotique)  
Organizer and Chair, Track Robotics (ASME ESDA'2012)  
Organizer and Chair, Bi-annual French Robotics Conferences (JNRR'2011)  
Organizer and Chair, Int. Conference on Advances in Robot Kinematics (ARK'2008)  
Organizer and Chair, Track Robotics of the future (IFAC INCOM'2006)  
Co-chair of the organizing Committee, IDMME'1996  
Organizer and Chair, Track Advanced CAD for Robotics (ISRAM'1994)  
Member of the scientific committee of more than 20 international conferences since 1994

## **Summary of scientific production**

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53 papers in peer-reviewed international journals

2 patents

Editor in Chief of 1 book

15 books or book chapters with ISBN

140 papers in international conferences

23 keynotes or plenary lectures in national and international conferences, workshops and seminars

Full list of publications : [http://www.irccyn.ec-nantes.fr/~wenger/Publications/wenger-prod2014\\_E.pdf](http://www.irccyn.ec-nantes.fr/~wenger/Publications/wenger-prod2014_E.pdf)

## **Current Ph.D students supervision**

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Latifah Nurahmi : Kinematic analysis and design of lower-mobility parallel manipulators (2012-2015)

Lorenzo Gagliardini : Study of a cable robot for the assembly of offshore wind turbines (2013-2016)

Romain Benoit : Qualitative analysis of robots (2013-2016)

## **Past Ph.D students**

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Coralie Germain : Design of a new pick-and-place parallel manipulator. Graduated in 2013.

Seeman Amine : Lower-mobility parallel manipulators: geometrical analysis, singularities and conceptual design, Graduated in 2011.

Nicolas Binaud : Robust design of parallel mechanisms. Graduated in 2010.

Guillaume Jacquenet : Layout optimization problems. Graduated in 2010.

Raza Ur-Rehman : Multi-objective design of parallel manipulators. Graduated in 2009.

Daniel Kanaan : Kinematic and Dynamic analysis of parallel kinematic machines. Graduated in 2008.

Mazen Zein : Singularity analysis of parallel manipulators. Graduated in 2007.

Ofelia-G Alba-Gomez : Trajectory Optimization of redundant parallel manipulators. Graduated in 2007.

Maher Baili : Kinematic analysis of 3R manipulators. Graduated in 2004.

Stéphane Caro : Robust design of mechanisms. Graduated in 2004.

Félix Majou : Design of parallel kinematic machines. Graduated in 2004.

Damien Chablat : Uniqueness domains and moveability of parallel manipulators. Graduated in 1998.

Jaouad El Omri : Kinematic analysis of regional manipulators, graduated in 1996.

Hervé Thomas : Optimal trajectory planning of a fleet of mobile robots. Graduated in 1995.

Fabienne Reynier : Geometric synthesis of robotic sites, Graduated in 1992.

## **Current granted projects**

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Equipex Robotex, Robotic Platforms, 2011-2019 (962K€)

FUI GE Healthcare, Robotized imaging for minimally invasive surgery, 2010-2013 (400K€);

IRT Jules Verne, Dry Fiber Placement, 2013-2015 (179 k€)

General Electric-Healthcare, Optimization of a mobile robot for medical imaging », 2013-2014 (119 K€)

PHC Amadeus France-Austria, Kinematic analysis of lower-mobility parallel robots, 2013-2014 (10 k€)

## **Past granted projects**

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ANR PSIROB, Singularities of Parallel Robots, 2007-2011 (626K€)

MathSTIC, Cuspidal Robots and Triple Roots, 2005, (30 K€).

STAUBLI, Study of a cuspidal 6R robot, 2003, (30K€).

ANVAR/EMN, Design of a innovative machine-tool with parallel kinematics, 2001-2002 (20 K€).

TECNOMATIX, Study of 6R and 7R robotic arms with non conventional kinemactis, 2001 (80 KF).

CRITT, Optimal trajectory planning of a fleet of mobile robots, 1997 (300 KF).

EDF, Optimal design of a robot for intervention inside a steam generator, 1994 (120 KF)

S RTP, Velocity planning of a fleet of mobile robots, 1992-1994 (500 KF)