



MASTER IRIV/IRMC - LABEX CAMI
MEDICAL ROBOTICS INTENSIVE COURSE
STRASBOURG – February 3rd – February 11th 2014
GENERAL SCHEDULE

- **ARRIVAL: Sunday, February 2nd 2014, Strasbourg – Entzheim – Airport and/or Train Station**

Accommodations: Adagio-Access-Strasbourg-Illkirch :106, Avenue de Strasbourg, 67400 Illkirch,

<http://www.adagio-city.com/fr/hotel-8406-adagio-access-strasbourg-illkirch-ex-citea/location.shtml>

E-mail: H8406@adagio-city.com, Tramway A line, Colonne stop.

- **MONDAY, February 3rd: 1st Teaching Day**
 - at IRCAD from 8:30 AM to 12:00 PM (Hôpital Civil, next to Petite France, see access map) - Lunch at *RU*
 - at Télécom Physique Strasbourg from 2:00 PM to 6:00 PM – (Pole API, 300 Bld. S. Brant, Illkirch)
- **TUESDAY, February 4th: 2nd Teaching Day**
 - at Télécom Physique Strasbourg from 8:30 AM to 6:00 PM - Lunch at *RU Illkirch*
- **WEDNESDAY, February 5th: 3rd Teaching Day**
 - at Télécom Physique Strasbourg from 8:30 AM to 6:00 PM - Lunch at *RU Illkirch*
- **THURSDAY, February 6th: 4th Teaching Day**
 - at Télécom Physique Strasbourg from 8:30 AM to 6:00 PM – Lunch at *RU Illkirch*
- **FRIDAY, February 7th : 5th Teaching Day**
 - at Télécom Physique Strasbourg from 8:30 AM to 6:00 PM – Lunch at *RU Illkirch*
- **MONDAY, February 10th : 6th Teaching Day**
 - at IRCAD from 9:00 AM to 1:00 PM – Lunch at *RU*
 - at Télécom Physique Strasbourg from 2:30 PM to 5:00 PM
- **TUESDAY, February 11th : 7th Teaching Day**
 - at Télécom Physique Strasbourg from 8:30 AM to 5:00 PM – Lunch at *RU Illkirch*
- **DEPARTURE OF TELECOM PARIS Students:**
 - **Tuesday, February 11th or Wednesday 12th, Strasbourg – Train Station or Entzheim - Airport**

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TRAVEL INDICATION AND ACCESS TO THE DIFFERENT PLACES

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E-mail: H8406@adagio-city.com, Tramway A line, Colonne stop.

Access from the airport: take the train shuttle to Strasbourg Gare centrale/Main Station

From Strasbourg Gare centrale/Main Station: take the A line towards *Illkirch-Lixenbuhl* and get off at *Colonne* (see tramway map *tramway-map-2012.pdf*)

IRCAD : 1, Place de l'Hôpital, Hôpital Civil

Take the tramway to *Porte de l'Hôpital* on A line. From the tramway station, go across the Hôpital Civil ground to IRCAD main entrance (see *ircad-access-map.pdf*).

Télécom Physique Strasbourg : 300, Bd. S. Brant, Par d'Innovation Illkirch

From the hotel, take the A line to *Campus d'Illkirch*, then, walk to the Pôle API and Telecom Physics Engineering School (TPS) main entrance.

Maison Kammerzell : Welcoming dinner – Place de la Cathédrale

Near Strasbourg Cathedral – from the hotel take the A line to *Grand Rue*, then go by walking to the restaurant or go directly by walking from IRCAD (see map of the center of Strasbourg).

Attached Maps:

- Tramway: *tramway-map-2012.pdf*

- IRCAD: *ircad-acces-map.pdf*

CONTACT :

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Pr. Bernard Bayle - Télécom Physique Strasbourg – IRCAD – bernard.bayle@unistra.fr

Mme Sylvie Poinignon – Télécom Physique Strasbourg – tel +33 (0)3 68 85 43 30

Strasbourg University TPS	<p style="text-align: center;">MEDICAL ROBOTICS</p> <p style="text-align: center;">COURSE DESCRIPTION</p>	Year 2013-2014
February 3rd – February 11th 2014	Pr. Michel de Mathelin demathelin@unistra.fr	50h
Teaching staff: Olivier Kermorgan, Florent Nageotte, Adlane Habed, Stéphane Nicolau, Didier Mutter, Hyewon Seo, Michel de Mathelin		
Prerequisite : Basis of Geometry, Algebra, Control Theory, Digital Signal and Image Processing		
Goal : <ul style="list-style-type: none"> • To provide necessary knowledge in order to start research projects in the area of medical robotics; • To give an exposure to the specific constraints of an operating room; • To present the robotics devices and systems (sensors, actuators, mechanical structures, control architectures, ...) used for computer aided surgery; • To become able to analyze medical procedure in order to provide adapted assistive technologies and systems. 		
Detailed program: Fundamental of robotics : <ul style="list-style-type: none"> - Modeling and parametrization of articulated objects in 3D space - Forward and inverse kinematics - Differential kinematics and control Robot vision : <ul style="list-style-type: none"> - Vision models - 3D reconstruction - Calibration Medical robotics and computer aided surgery: <ul style="list-style-type: none"> - Medical robotis main characteristics - Operating room equipment - Basis of laparoscopic surgery and NOTES - Sensors, registration and visual servoing - Augmented reality - Geometric modelling - Virtual reality - Haptics and telemanipulation 		
Practical work : <ul style="list-style-type: none"> • Kinematic control of robot in Cartesian space and image based visual servoing • Experimental laboratory in the surgical suite of IRCAD 		
Knowledge control modalities : <ul style="list-style-type: none"> • Homeworks; • Final examination: a three hours final examination at the end of the course. 		