Welcome to the Ph.D. Program on Innovative Technologies

Prof. Giorgio Buttazzo
Ph.D. Course Coordinator
Innovative Technologies of ICT and Robotics

**Institute of Communication, Information and Perception Technologies**
- **Embedded Systems** (Real-Time Computing)
- **Telecommunications** (Photonic Technologies)
- **Perceptual Robotics** (Virtual Env. & Telepresence)

**The BioRobotics Institute**
- **Biorobotics** (Micro-Eng, Biomedical-Eng)

Curricula in ICT & Robotics

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Labs</th>
<th>Location</th>
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<tbody>
<tr>
<td><strong>1. Embedded Systems</strong></td>
<td><img src="#" alt="Retis" /> Real-Time Systems Laboratory</td>
<td><strong>CNR-Area</strong> Ground Floor</td>
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<tr>
<td>(Real-Time Computing)</td>
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<td><strong>2. Telecommunications</strong></td>
<td><img src="#" alt="IRCPHONET" /> Integrated Research Center</td>
<td><strong>CNR-Area</strong> 1st Floor</td>
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<td>(Photonic Technologies)</td>
<td>on Photonic Networks and Technologies</td>
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<td><strong>3. Bio-Robotics</strong></td>
<td><img src="#" alt="ARTS" /> Advanced Robotics Technology</td>
<td><strong>Pontedera</strong></td>
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<tr>
<td>(Micro-Eng, Biomedical-Eng)</td>
<td>and Systems</td>
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<td><strong>4. Perceptual Robotics</strong></td>
<td><img src="#" alt="PERCRO" /> Perceptual Robotics Laboratory</td>
<td><strong>Pisa</strong></td>
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<td>(Virtual Env. &amp; Telepresence)</td>
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## Advisory Board

The **Advisory Board** of the PhD Program is composed by two members for each curriculum:

- Giorgio Buttazzo (Coordinator)
- Giuseppe Lipari
- Giancarlo Prati
- Piero Castoldi
- Paolo Dario
- Arianna Menciassi
- Massimo Bergamasco
- Carlo Alberto Avizzano

### Curriculum Breakdown:

- **Embedded systems**
- **Telecommunications**
- **Bio-Robotics**
- **Perceptual Robotics**

The Advisory Board defines the overall PhD program and evaluates the progress of each PhD student every year.

## Tutor and Supervisor

Each PhD student has to indicate a **Tutor** and a **Supervisor**, who are nominated by the Advisory Board:

**Tutor**
- Follow the student during the PhD program;
- Guide the student to plan activities and set learning objectives;
- Suggest and authorize all the requests.

**Supervisor**
- Set novel research objectives and provide references on the existing literature;
- Suggest appropriate courses, seminars, or schools.
- Evaluate the work, providing constructive feedback.

→ **Tutor and Supervisor may be the same person.**
Courses

Three types of courses

- General courses
  ⇒ They cover broad areas of common interests across the four curricula (typically 3 credits each).

- Specific courses
  ⇒ They are more focused to specific topics within each curriculum (typically 3 credits each).

- Integrative courses and seminars
  ⇒ Lectures given by assistant professors or external teachers to integrate the material covered in a course.

Obligations

Credits

To be eligible for the final exam, each PhD student must gain at least 30 credits divided as follows:

<table>
<thead>
<tr>
<th></th>
<th>30 credits</th>
<th>General</th>
<th>Specific</th>
<th>Integrative</th>
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<tbody>
<tr>
<td>Y1</td>
<td>≥ 20</td>
<td>≥ 6</td>
<td>≥ 6</td>
<td>≥ 2</td>
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<tr>
<td>Y2</td>
<td>≥ 8</td>
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<td>≥ 2</td>
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<tr>
<td>Y3</td>
<td>≥ 2</td>
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<td>≥ 2</td>
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Suggestion

Courses to be attended

- First year (20 credits)
  - 3 general courses (9 credits)
  - 3 special courses (9 credits)
  - 2 Integrative courses (2 credits)

- Second year (8 credits)
  - 2 special courses (6 credits)
  - 2 Integrative courses (2 credits)

- Third year (2 credits)
  - Integrative courses only

Projectual work

- At most 6 credits can be given for research activities connected to a specific project.
- A reference professor must be identified for each projectual work to certify the activity.

Obligations

Research activity

To be eligible for the final exam, each PhD student must gain at least 150 credits in research activities, divided as follows:

- 30 credits in the first year
- 50 credits for second year
- 70 credits for third year

Credits are assigned based on the evaluation done each year by the Advisory Board.
Obligations

Language courses

- Foreign students
  - Italian course, within the first 6 months

- All students
  - Advanced English course

Reporting activities (every year)

- Activity report
  - Research activities
  - Attended courses and seminars
  - Involvement in projects
  - Publications
  - Lab services and other experiences

- Next Year Plan
  - Planned research activities
  - Courses and seminars to be attended
  - Publications in progress
  - Other plans

Reporting activities are evaluated by the Advisory Board
**Obligations**

**Foreign research experience**
- During the second half of the program, each student can spend 6 months abroad in a highly qualified research lab.

**Traveling**
- To attend conferences, workshops, seminars, or summer schools, students must be authorized by the Tutor and the Coordinator.

**Professional activities**
- Professional activities can be carried out only in the third year, if compatible with the research program, and must be authorized by the Advisory Board.

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**Web site**

Templates and other material are available on

http://retis.sssup.it/phd-engineering/