

Universidad Carlos III de Madrid ([www.uc3m.es](http://www.uc3m.es)) invites to fill the following **PhD position**:

**Ref. NEXTFLOW-PhD1: Data-driven flow measurements.**

**Description and objectives:**

Flow sensing and control heavily rely on state-of-art experimental/computational fluid mechanics to characterize and model the flow behavior. In experiment it is difficult to achieve a complete flow description, since experimental techniques normally provide only a partial view of the flow properties. Planar and volumetric velocimetry techniques are offering interesting opportunity to aim towards a complete flow characterization.

The goal of the PhD is to develop data-driven methods to achieve a 4D-4C flow description (velocity + pressure in space and time) from non-time resolved velocity field measurements combining the advantages of simultaneous use of different measurement techniques. Create a generalized and flexible approach requires minimizing the underlying hypotheses and the hardware complexity. The arsenal of machine-learning tools is now offering unprecedented opportunities to increase the reach of flow measurement techniques. Data-mining and artificial-intelligence techniques will be tuned to perform this task. The validation of the methods will require use of databases of numerical data and performing experiments.

The successful candidate will join the Experimental Aerodynamics and Propulsion Laboratory (<https://aero.uc3m.es/EAPlab.html>), within the Aero Research Group (<http://aero.uc3m.es/research.html>) of UC3M. He/she will work under the supervision of Dr. Stefano Discetti, within the recently granted **ERC Starting Grant project NEXTFLOW** (Next-generation flow diagnostics for control).

**Requirements and desirable profile:**

- Young MSc holder (or MSc student with 60 ECTS passed at contract's signature) with background in the following disciplines: Aerospace Engineering, Fluid Dynamics, Applied Mathematics & Statistics, Scientific Computing. Excellent candidates in other disciplines are also invited to apply.
- Outstanding academic record; critical and creative thinking.
- International experience; team-working and communications skills.
- Good proficiency in English (oral and written).
- Ability to deal independently and proactively with scientific and engineering challenges.

**What we offer:**

- 3-year contract (with optional 1-year extension); annual gross salary in the 20000-22000€ range.
- Become part of a young, dynamic, highly qualified, collaborative team.
- Flexible working environment and schedule.
- Opportunity to travel to international conferences to present research activities.
- Opportunity to carry out research internships abroad.
- Health coverage under the National Health System.

**How to apply:**

Interested candidates must send their applications to [sdiscett@ing.uc3m.es](mailto:sdiscett@ing.uc3m.es) indicating in the e-mail subject **NEXTFLOW-PhD1**, including in a single pdf file:

- CV (max. 4 pages), including relevant professional experience and knowledge.
- Copy of diploma and grades from previous university studies.
- A motivation letter of experience, interests, and research goals (max. 1 page).
- The contact information for two references (will be contacted during the hiring process).

Submission of applications is due by **October 15th, 2020** (though early applications are strongly encouraged, and later applications will be considered until the vacancy is filled). The contract will begin in January 2021, though earlier/later start date can be agreed.