



CREW Facilities for Educational Activities

Goals

- Offering user experience over a broad range of wireless technologies and testbed capabilities.
- Creating worldwide awareness of the CREW facilities.
- Generating opportunities for collaboration in experimental wireless research.

Challenges

- Enable inexperienced experimenters to utilize the CREW federation testbeds, flattening the learning curve.
- Combining live experimentation with education, in line with other FIRE projects, in particular FORGE.

Educational Activities

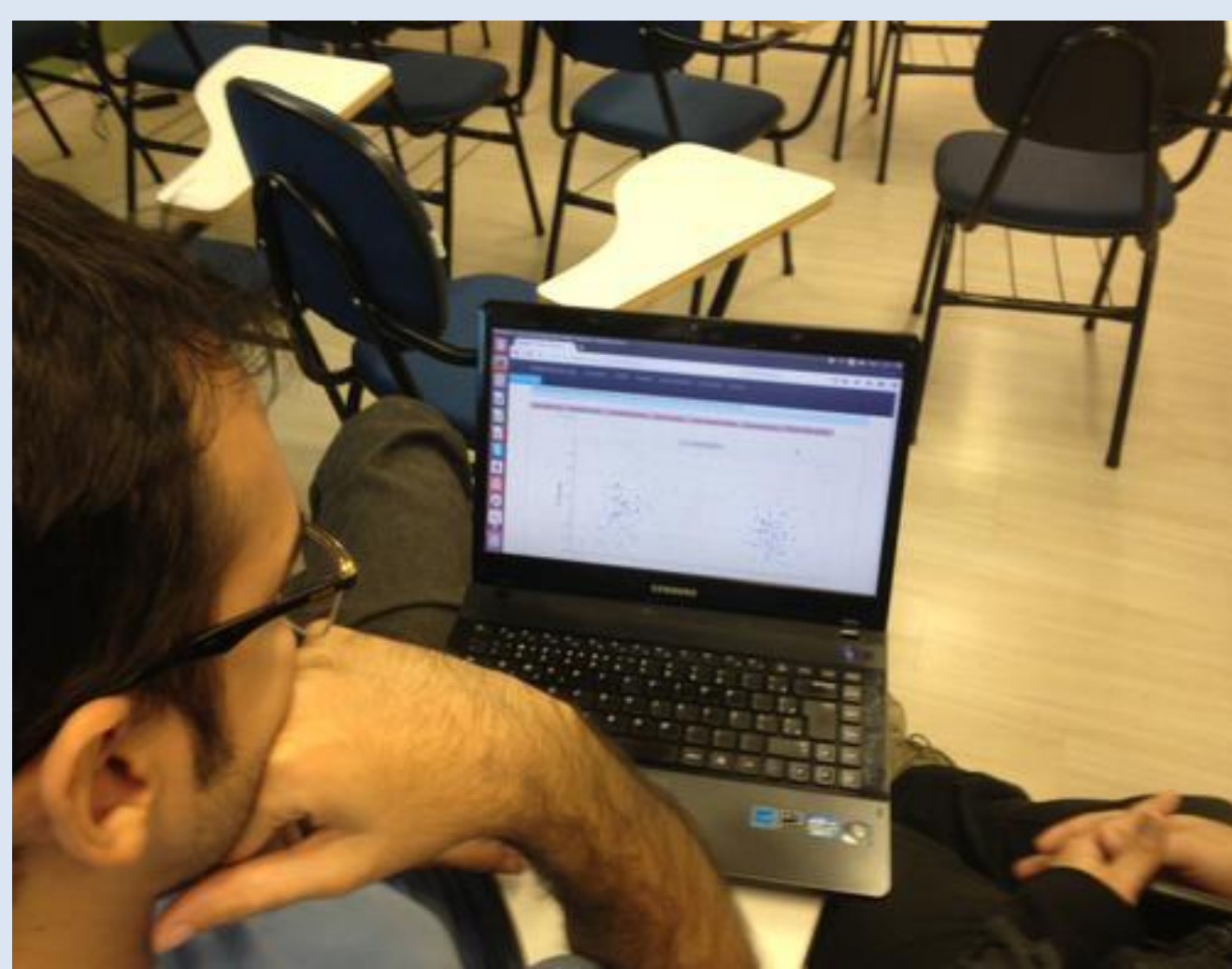


Figure 1

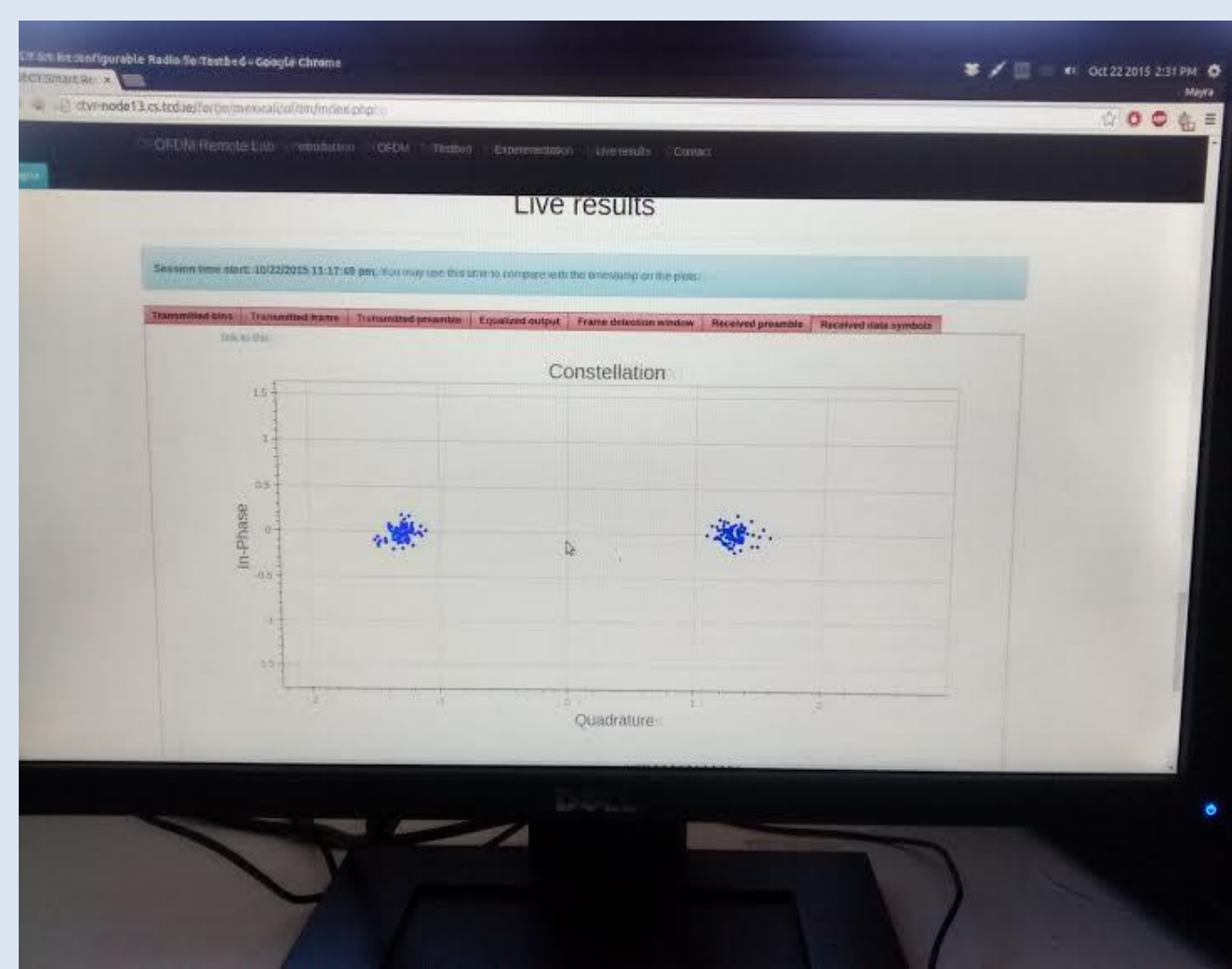


Figure 2

- Trinity College Dublin (TCD) gave courses on **Software Defined Radio** at the Universidade de Brasília, Brazil, Universidade Federal do Rio de Janeiro, Brazil, and Mexicali, Mexico. Courses included experimentation conducted remotely on the TCD testbed (Figs. 1, 2, 3).
- iMinds explored issues related to **Wi-Fi throughput** with students at Ghent University (Belgium) using the iMinds Virtual Wall and w-iLab.t facilities. This lab is now being reused in other universities worldwide.
- The development of these courses, using amongst others CREW facilities, fit within the context of the **FORGE** project about combining e-learning with **FIRE**.

Educational Activities



Figure 3



Figure 4

- The LOG-a-TEC testbed was used at the Jozef Stefan International Postgraduate School by selected students as part of their individual research work towards master theses and doctoral dissertations, focusing on **longer term UHF spectrum sensing, performance evaluation** of the wireless management network and **RSSI-based localization**.
- Technische Universität Dresden (TUD) hosted the **5GLab Summer School** on Wireless and Networks 2015. The participants **implemented and tested their own basic implementation** of a GFDM modulator using TUD laboratory facilities (Fig. 4).

Educational Activities

- **Tutorial at IEEE Globecom 2015:**
 - Demonstrating how to set up and execute simple Cognitive Radio experiments, which are conducted remotely on the different CREW testbeds, through hands-on exercises.

- **Wireless Testbed Academy**
 - Offering well-documented processes and code for example experiments on basic sensing, basic transmission and cognitive radio for different types of hardware available in CREW testbeds.
 - Available at: <https://github.com/WirelessTestbedsAcademy>

Testimony

In courses taught at TCD using TCD's CREW facilities:

- 90% of students felt their experimentation experience reinforced the concepts taught in the lecture.
- 89% of students felt the experimentation made the course work seem more tangible.
- 64% of students are eager to use the testbed in the future.

Testimony

- "No configuration hassle, nice and easy graphs."
- "The iMinds wall was easy to use."
- "No struggling with configuring systems. Because of this, the assistants had more time to extensively answer the questions that we had."



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PROJECT DATA

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