Programming and Management of Experiments in oTree

Summer School & Workshop on Experimetrics & Behavioral Economics

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Course Description

This course provides a comprehensive introduction to oTree, a powerful and flexible open-source platform for developing and running economic and social science experiments. Designed for graduate students, this course covers fundamental concepts of oTree programming, from setting up basic individual experiments to designing complex group interactions. Students will learn how to manage their experiments, deploy them effectively, and collect and manage experimental data. The emphasis is on hands-on learning, enabling students to develop their own experimental paradigms by the end of the course.

Learning Objectives

By the end of this course, students will be able to:

- Understand the core architecture and concepts of the oTree framework
- Design and implement individual-level experimental tasks in oTree
- Develop and program interactive group-based experiments, including matching and communication
- Manage oTree projects, including app configuration and session creation
- Deploy oTree experiments and collect data efficiently
- Extract and analyze experimental data generated by oTree

Prerequisites

- Basic familiarity with Python programming concepts and HTML/CSS is recommended but not strictly required
- Prior experience with experimental research methodology is beneficial

Course Structure

Module 1: Introduction to oTree

- **Topic:** Programming and management of experiments in oTree - An Introduction
- **Content:**
  - Smart experimental design principles
  - Advantages of computerized experiments over paper & pencil methods
  - Introduction to oTree framework and architecture
  - oTree's object hierarchy (Session, Subsession, Group, Player, Page)
  - Basic code structure and app components

Module 2: Individual Experiments

- **Topic:** Individual experiments in oTree
- **Content:**
  - Designing and implementing individual-level experimental tasks
  - Creating forms and user interfaces
  - Data collection and validation
  - Page flow and navigation
  - Practice with common experimental paradigms

Module 3: Group Experiments

- **Topic:** Group experiments and interactions
- **Content:**
  - Programming interactive group-based experiments
  - Player matching and group formation
  - Communication between participants
  - Real-time interactions and updates
  - Managing group dynamics in experiments

Module 4: Online Deployment (Advanced Topics)

- **Topic:** Online deployment and data management
- **Content:**
  - Deploying oTree experiments online
  - Server configuration and management
  - Data collection strategies
  - Extracting and analyzing experimental data
  - Best practices for online experiments

Technical Requirements

- Python installation (see here)
- oTree installation (see here)
- Text editor or IDE (VS Code recommended)
- Web browser for testing experiments

Course Materials

- All course materials, slides, and code examples are provided on github https://github.com/ploteo/soleto/tree/main
- Additional resources include oTree documentation and community resources
- Practical exercises and sample experiments for hands-on learning

Homework

- Hands-on programming exercises
- Individual experiment design project

Additional Resources

- oTree official documentation: https://otree.readthedocs.io/en/latest/
- Python programming resources

This syllabus is subject to modification as the course progresses. Students will be notified of any significant changes.