CY. center for
algorithmic
transparency

Document Title	**Materials from developer seminar**
Project Title and acronym	Cyprus Center for Algorithmic Transparency (CyCAT)
H2020-WIDESPREAD-05-2017-Twinning	Grant Agreement number: 810105 — CyCAT
Deliverable No.	D2.4
Work package No.	WP2
Work package title	Dissemination and outreach
Authors (Name and Partner Institution)	Maria Kasinidou (OUC) Styliani Kleanthous (OUC) Jahna Otterbacher (OUC) Kalia Orphanou (OUC)
Contributors **(Name and Partner Institution)**	Frank Hopfgartner (USFD) Monica Lestari Paramita (USFD)
Reviewers	Paraskevi Kleanthous (OUC)
Status **(D: draft; RD: revised draft; F: final)**	F
File Name	D2.4_Materials_from_Developer_Seminar_M28
Date	28 January 2021

Draft Versions - History of Document				
Version	**Date**	**Authors / contributors**	**e-mail address**	**Notes / changes**
v1.0	1/9/20	J. Otterbacher	jahna.otterbacher@ouc.ac.cy	Initial version
v2.0	20/12/21	K. Orphanou	kalia.orphanou@ouc.ac.cy	First draft version
v3.0	25/1/21	J. Otterbacher	jahna.otterbacher@ouc.ac.cy	Review version
v4.0	28/1/21	J. Otterbacher	jahna.otterbacher@ouc.ac.cy	Final version

Abstract

This deliverable complements D5.3 (*Materials for developer seminar),* which presented an outline for our technically-oriented seminar on FATE (Fairness, Accountability, Transparency and Ethics) for young developers. This deliverable serves as an archive of the educational materials used for the seminars.

Keyword(s):	Developers' training, Intervention with computer science students, Software engineering

Contents

1.   Executive Summary

As described in the CyCAT DoA, the developers seminar was designed and conducted in collaboration with the [Department of Computer Science of the University of Cyprus](#) (UCY), which is recognized as the most comprehensive and prestigious computer science program in Cyprus. A previous deliverable, D5.3 (*Materials for developer seminar*), outlined the plans for a 10-hour seminar, including the learning objectives, and the topics and activities to be covered. The current deliverable documents our experience in conducting the intervention, as well as the final educational materials developed for the seminars.

2.   The Developer Seminars

The seminars were implemented as "interventions" within the two Software Engineering courses (one at the undergraduate, and one at the graduate level) offered by the computer science department of UCY. The undergraduate course is mandatory for all third-year students of the Computer Science BSc program. The seminar was also run in the *Advanced Software Engineering* course, which is an elective offered to postgraduate students of MSc degree in CS or Advanced Information Technologies. Due to the COVID-19 pandemic, both courses were being offered in an online format during the Fall 2020 semesters. The instructors of the seminar were: Prof. Jahna Otterbacher, Dr. Kalia Orphanou, and Dr. Styliani Kleanthous. In addition, Ms. Maria Kasinidou (PhD student) participated in the hands-on laboratory session, along with two CyCAT colleagues from Sheffield, Dr. Monica Lestari Paramita and Prof. Frank Hofgartner.

As described in D5.3, in the seminar participants: i) became aware of FATE issues in the development of (algorithmic) process/systems; ii) learned the core FATE concepts related to software development; iii) developed appreciation for the role that developers play in mitigating algorithmic bias and in promoting ethical practices; iv) became aware of techniques for auditing services/modules used in development. The seminar began with asking the students to fill in the pre-seminar questionnaire. Then an introduction and basic definitions of the concepts that were going to be discussed during the course were provided, providing also examples from real life systems that the students were familiar with (e.g. Google Search Engine, Facebook etc.) and have exhibited behaviour that was not fair or just to some parts of the population. Moving on, the students were became aware of relevant policies - national and international - that attempt to regulate issues related to algorithms FATE e.g. GDPR, ACM Principles of Algorithmic Transparency and Accountability and National Strategies on those topics.

Research results were used to explain to the students the methods and approaches followed for uncovering and mitigating bias in such systems and the main stakeholders who are involved i.e., developers, users. Examples of such approaches include Auditing, Fairness Management and Explainability.

2.1 Participants

While an evaluation of the developer seminar will be presented in a future deliverable (D5.4 - *Evaluation of developer seminar* - M36), here, we present some of the initial data that we collected concerning the participants. In particular, we analyze their demographic characteristics as well as some of their initial beliefs about FATE.

50 undergraduate students participated in our seminar, whereas seven postgraduate students, who were pursuing an MSc degree, participated. As demonstrated in Figures 1 and 2, all participants were under 28 years of age, with the undergraduates being a bit younger than the graduate students, as expected. As shown in Figures 3 and 4, the majority of our participants were men (85.7% of the graduate students, and 72% of the undergraduate students).

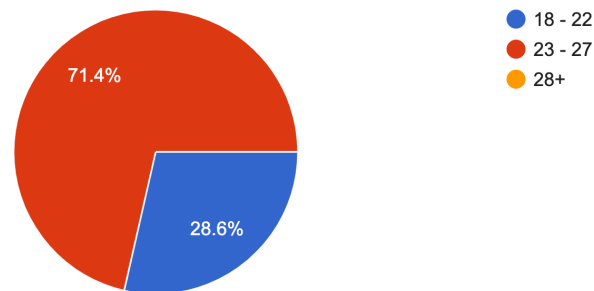Please select an age group that best represents your age.
7 responses

Figure 1: Age distribution for graduate student participants.
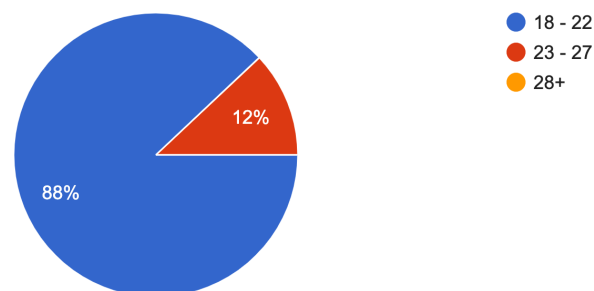
Ηλικία:
50 responses

Figure 2: Age distribution for undergraduate student participants.

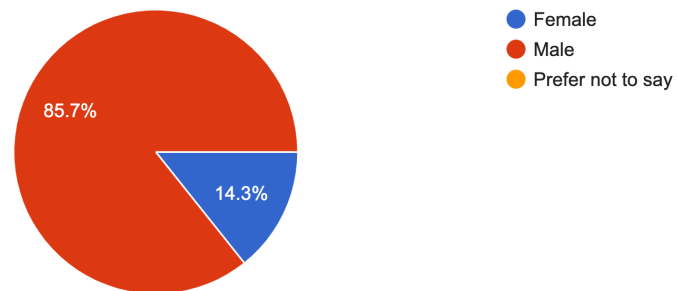What is your current gender identity?

7 responses

● Female
● Male
● Prefer not to say

85.7%

14.3%

Figure 3: Gender distribution for graduate student participants.

Φύλο:

50 responses

● Γυναίκα
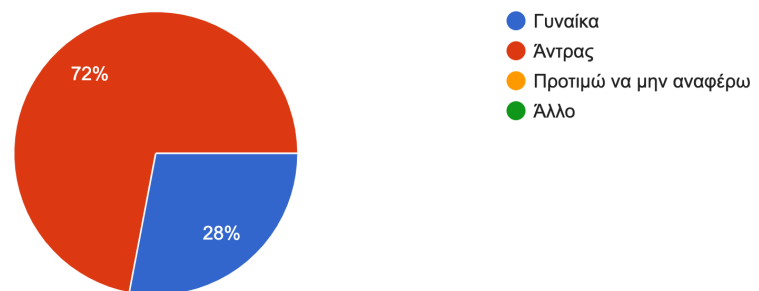● Άντρας
● Προτιμώ να μην αναφέρω
● Άλλο

72%

28%

Figure 4: Gender distribution for undergraduate student participants.

In the pre-seminar questionnaire, we asked participants to self-report whether they "...have taken any kind of training/course on Fairness, Accountability, Transparency issues in Algorithmic Systems." Understanding the participants' responses required us first to appreciate their previous experience with, and perceived knowledge in topics related to algorithmic fairness. 12.9% of our participants had taken some kind of training on the above topics, while the majority (77.4%) had not. Interestingly, a few participants did not answer this question, which could indicate that they did not understand it (i.e., that FATE training was something totally unfamiliar to them).

3.   Educational Materials

The archive of materials includes the following:

- Graduate Seminar (including slides for two 4-hour lecture/discussion sessions)
- Undergraduate Seminar (including slides for a 1.5-hour lecture/discussion session)
- Laboratory session (1.5-hour activity, which was used with both undergraduate and graduate students)

The archive is available publicly and can be downloaded from the CyCAT website:
http://www.cycat.io/project-outputs/