Hackathons pour des environnements technologiques plus diversifiés et inclusifs

Kiev GAMA
Professor Associado
kiev@cin.ufpe.br

Centro de Informática UFPE

Universidade Federal de Pernambuco

National Institute of Science and Technology in Software Engineering

Bio

Kiev SANTOS DA GAMA

Docteur (Université de Grenoble, 2011)

Thèse “*Vers les applications fiables basées sur des composants dynamiques*” encadré par Didier DONSEZ

Génie Logiciel et Systèmes Repartis

Allocataire de recherche et moniteur 2008-2011

Hack the Hackathon

An unconference series and interdisciplinary community exploring scientific collaboration, learning, and civic engagement through hackathons.

Geneva, Nov 6-10, 2023

2ème visite à Grenoble

Agenda

IoT et Smart Cities

Hackathons

Événements Collaboratifs dans plusieurs contexts

- Innovation
- Éducation
- Diversité et Inclusion

Mon introduction a l'IoT

Des technos

- RFID
- NFC
- Des capteurs en général
- Des protocoles

Des activités diversifiés

Un example à suivre

Mon retour à Recife (11/2011)

Mon intro aux Smart Cities

“T’es le seul ingénieur avec un doctorat maintenant. Étudie ça”

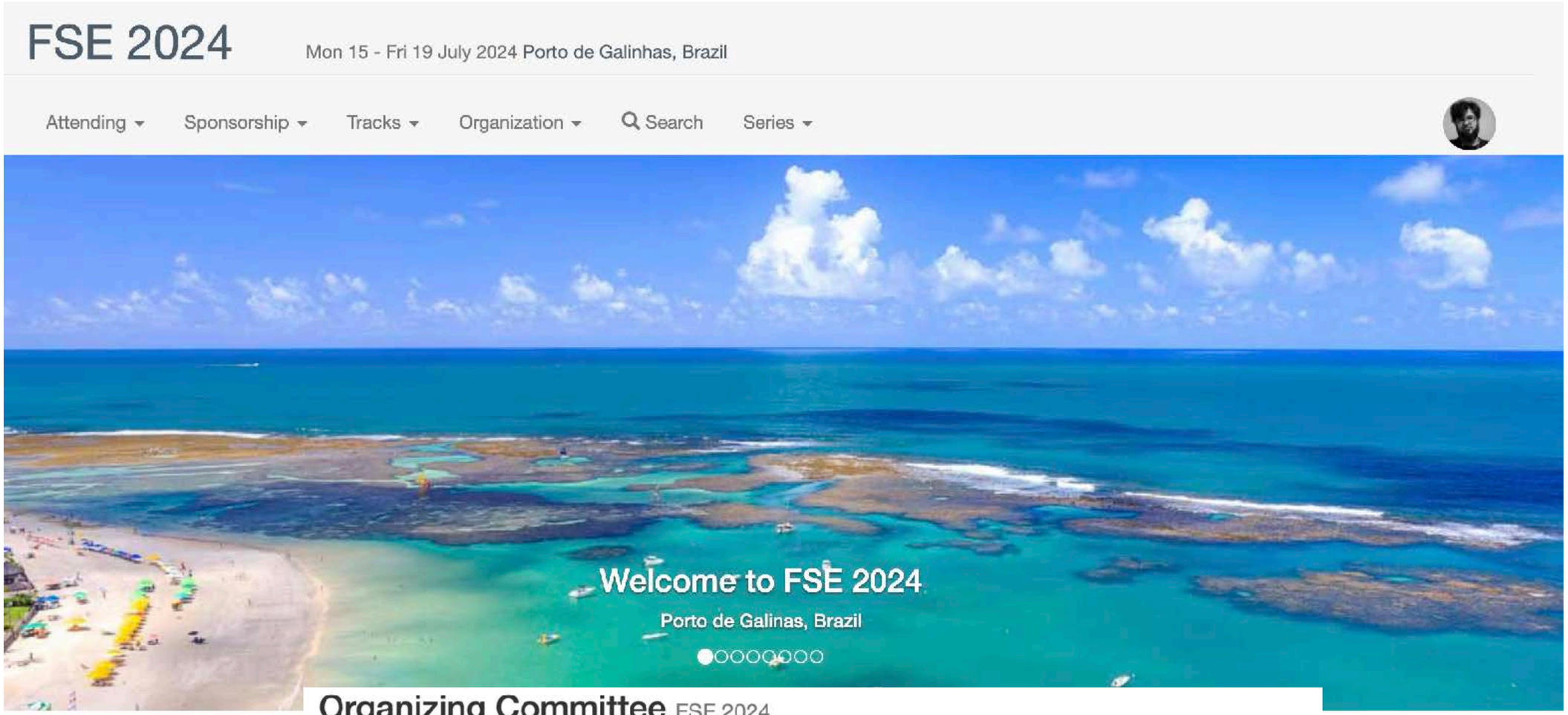
Open Data

Compétitions des applis Smart Cities

Je passe le concours de Maître de Conférences au Centro de Informática @ Universidade Federal de Pernambuco (CIn/UFPE) 11/2012

cin.ufpe.br

Foundations of Software Engineering (FSE) 2024



cin.ufpe.br

Étudiants au CIn/UFPE (Informatique)

+1.500 **Undergrad students enrolled**

+800 **Graduate students enrolled**

Specialization, Academic and Professional Masters and Ph.D.

Graduations

+2.700
Bachelors and Engineers

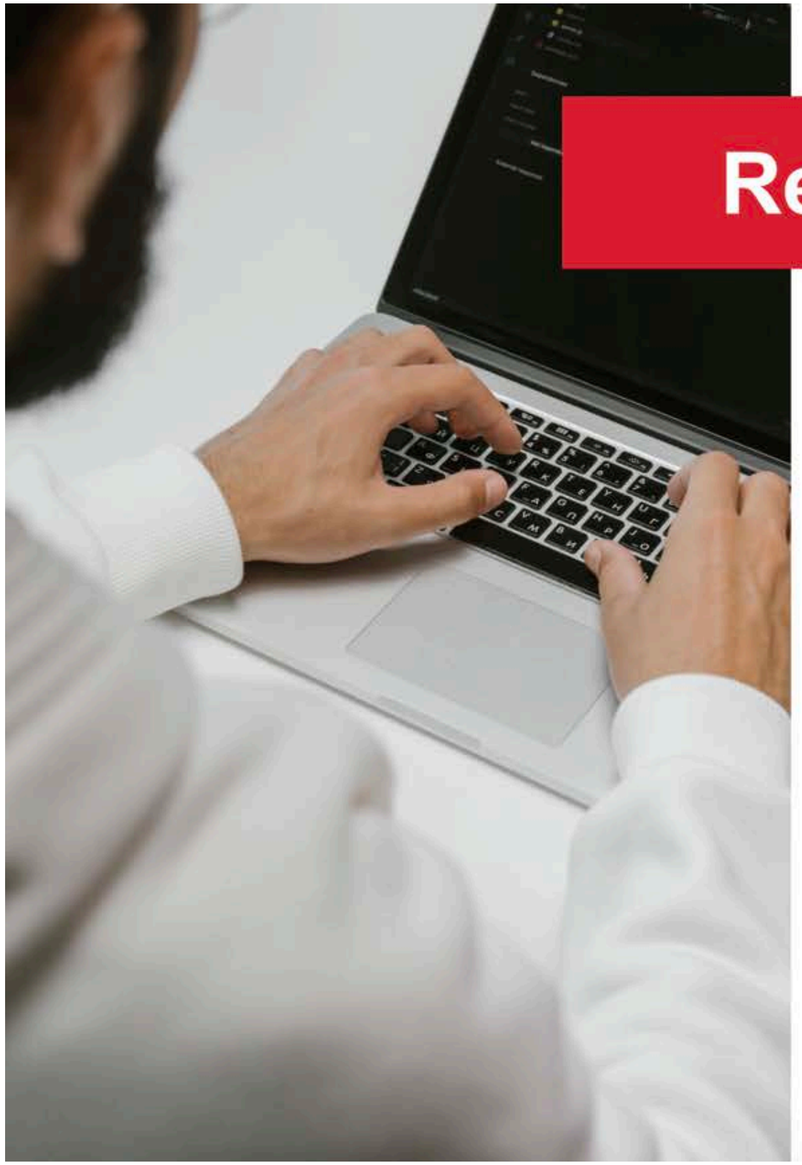
+2.400
Masters

+2.080 academic
+340 professionals

+600
PhDs

July/2023

cin.ufpe.br



Research areas

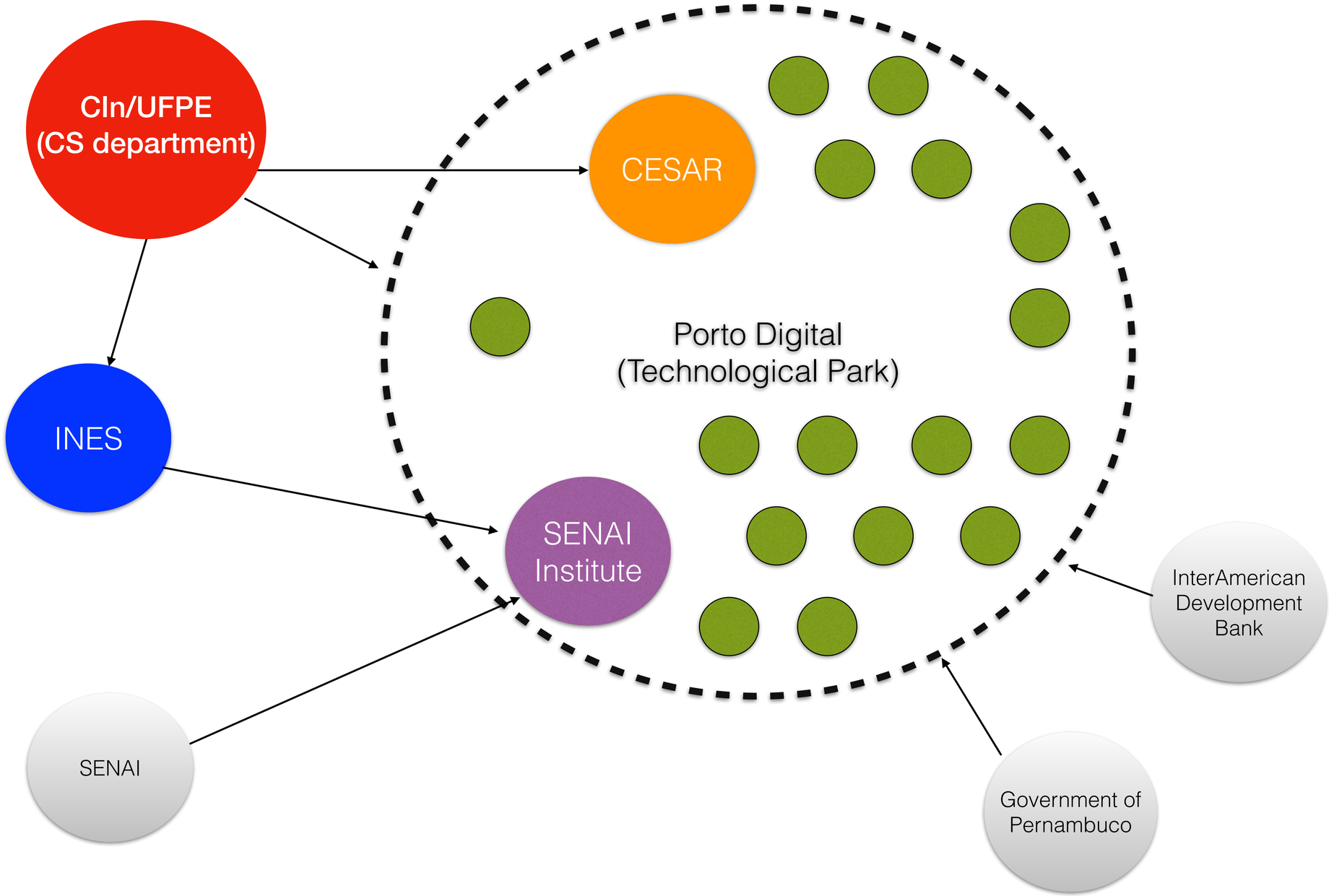
- Databases
- Data Science
- Ubiquitous computing
- Computer Engineering
- Software Engineering and Programming Languages
- Artificial intelligence
- Computational Intelligence
- Media and Interaction
- Networks and Distributed Systems
- Information Systems
- Computing Theory

Many Industry Partnerships

Porto Digital Technological Park @ Old Recife

Perspective on the local ecosystem

"Causality relationship" of the main ICT players in Recife



Successful partnership of the city's IT department and our university

2013
Recife (Brazil) Open Data Portal
(Partnership Recife City+CIn/UFPE)

2013-2014
Hackathons using that data
(Partnership Recife City+CIn/UFPE+CESAR+Porto Digital)

Emprel
RECIFE PREFEITURA DA CIDADE
POR VOCÊ, TRABALHANDO SEM PARAR
Centro de Informática U·F·P·E
C.E.S.A.R
PORTO DIGITAL

Collaborations >10 ans

Hackathons de 2013 à 2023

2020 en ligne (COVID-10) supporté par l’AFD

2021 suspendu (COVID-19)

Nous voulions juste un concours d'idées et un portail de données ouvertes

Open Innovation

Plusieurs leçons apprises

Un sujet de recherche?

2016: Récolte de données

“Motivations por participer dans un hackathon”

Étudiant abandonne le sujet

Soumission IEEE Software rejeté

3 articles publiés “solo mode"

Dans la recherche pour un étudiant

There is a serious problem

Imagem https://brasil.elpais.com/brasil/2017/09/13/tecnologia/1505332266_075532.html

Manterrupting
Mansplaining
Bropriating
…

Promoting Game Jams and Hackathons as more Women-inclusive Environments for Informal Learning

Lavínia Paganini
Centro de Informática
UFPE
Recife, Brazil
lfp2@cin.ufpe.br

Cláudia Ferraz
Centro de Informática
UFPE
Recife, Brazil
clfd@cin.ufpe.br

Kiev Gama
Centro de Informática
UFPE
Recife, Brazil
kiev@cin.ufpe.br

Carina Alves
Centro de Informática
UFPE
Recife, Brazil
cfa@cin.ufpe.br

Focus more on collaboration and less on competition

Encourage the development of technical and non-technical skills (soft skills)

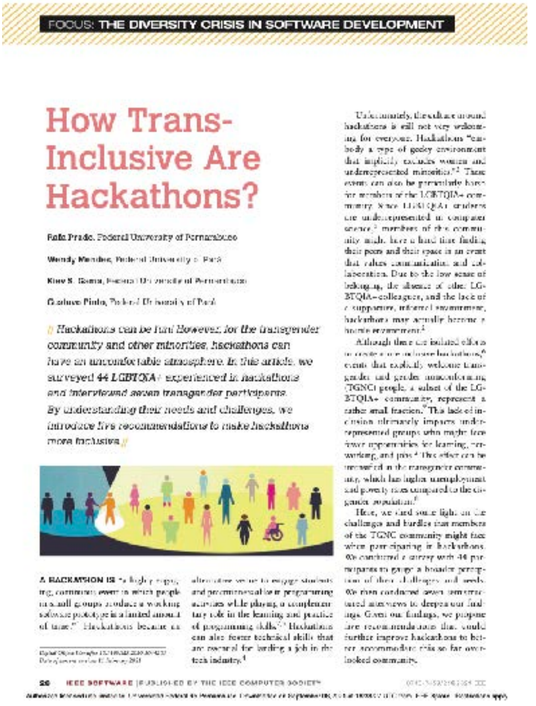
Promote healthier habits (food, sleep home, etc)

Define a more inclusive code of conduct

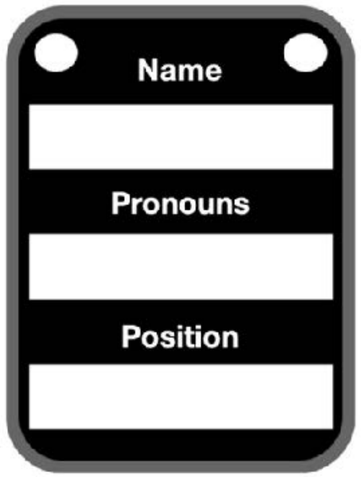
Include (as a majority!) women in the organizing team

Guidelines for inclusive hackathons

Prado et al, 2021



- Start With a Gender-Inclusive Organizing Team
- Foster Inclusive Communication
- Make Safety Visible
- Provide Good Working Conditions for Participants
- Showcase Trans People at the Event



Diversity and Inclusion Theses


Cláudia Ferraz


Natália Pinheiro


Larícia Mota


Victor Leal


Juliano Vaz

2017 — 2022


Glauciene Peixoto


Lavínia Paganini


Rafa Prado


Dayanne Coutinho


Igor Poncell

- Undergrad Thesis
- Undergrad -> Masters
- Masters
- Publications in confeernces/journals

Women participation in hackathons

Lavínia Paganini

1st hackathon for female audience in the region

Positive aspects of the event: *Safe environment, sisterhood, and collaboration*

Issues with men at other events: *Manterrupting, Mansplaining, underestimated skills*

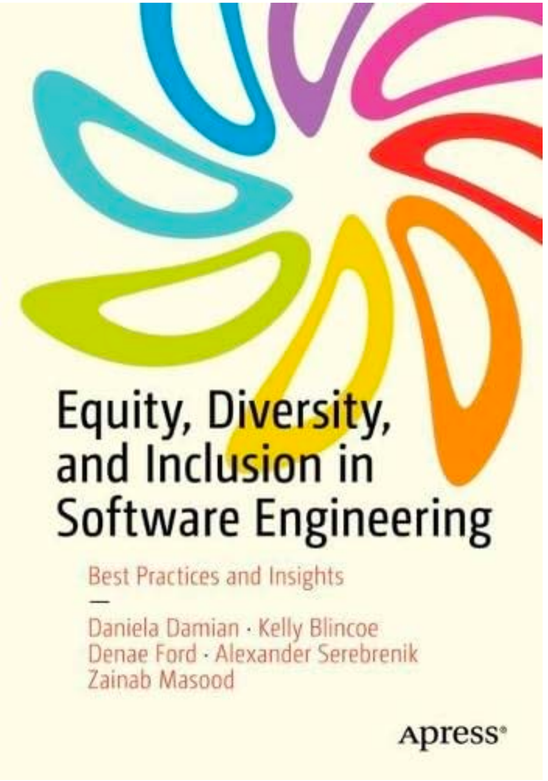
Various publications: ICGJ’19 (best paper), CHASE’20, FIE'21

Consolidation of guidelines for gender-inclusive hackathons

Book chapter "Toward more gender-inclusive game jams and hackathons”

Guidelines:

- Start with a gender-inclusive organizing team
- Foster inclusive communication
- Make safety visible through an explicit code of conduct
- Provide equipment to participants and showcase people in the event
- Promote events to attract underrepresented genders
- Stimulate groups of friends joining together
- Introduce elements that underrepresented genders can relate to
- Promote learning activities to stimulate both technical and soft skills
- Focus more on collaboration and less on competition
- Stimulate healthier habits



APPLE DEVELOPER ACADEMY UFPE

A melhor experiência de aprendizado da sua vida

Turma 2024-2025

VEJA AS ETAPAS

Siga nossas redes
e fique por dentro.

Hackathons and Authentic Learning

Learning in a real (or close to real) environment

Active learning

Technical and Socio-Emotional/ Soft skills

IEEE Frontiers in Education (FIE'18)

A Hackathon Methodology for Undergraduate Course Projects

Kiev Gama, Breno Alencar, Filipe Calegario, André Neves, and Pedro Alessio
Federal University of Pernambuco (UFPE)
Recife, Brazil

ITiCSE'18 (ACM SIGCSE)

Hackathons in the Formal Learning Process

Kiev Gama
Centro de Informática - UFPE
Recife, Brazil
kiev@cin.ufpe.br

Breno Alencar Gonçalves
Centro de Informática - UFPE
Recife, Brazil
bag@cin.ufpe.br

Pedro Alessio
C. de Artes e Comunicação - UFPE
Recife, Brazil
pedro@academy.cin.ufpe.br

My elective courses using hackathons are distributed systems courses

Introduction to Distributed Systems
Audience: Information Systems, Computer Science and Computer Engineering

IoT/Web of Things

Audience: Information Systems and Computer Science Students

Parentheses

Stream processing and Reactive Programming as my (now sort of secondary) research topics

How to test Data Stream Processing Applications

Usage of Reactive Programming

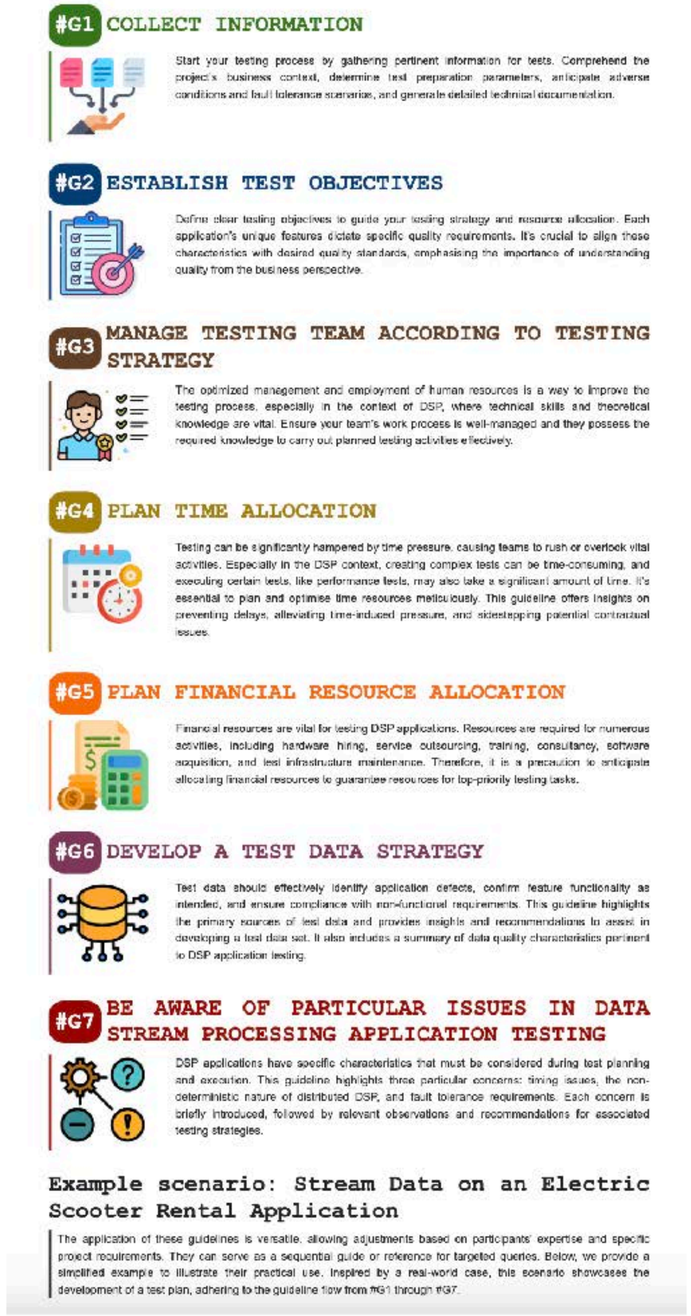
- JavaScript (RxJS, Bacon, etc)
- iOS (Swift Combine and RxSwift)

Publications on ESEM, MSR, JSS

Testing Guidelines for Data Stream Processing Applications

VIANNA, Alexandre, FERREIRA, Waldemar, et GAMA, Kiev. An exploratory study of how specialists deal with testing in data stream processing applications. In : 2019 ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM). IEEE, 2019. p. 1-6.

VIANNA, Alexandre, KAMEI, Fernando Kenji, GAMA, Kiev, et al. A Grey Literature Review on Data Stream Processing applications testing. Journal of Systems and Software, 2023, p. 111744.



#G1 COLLECT INFORMATION

Start your testing process by gathering pertinent information for tests. Comprehend the project's business context, determine test preparation parameters, anticipate adverse conditions and fault tolerance scenarios, and generate detailed technical documentation.

#G2 ESTABLISH TEST OBJECTIVES

Define clear testing objectives to guide your testing strategy and resource allocation. Each application's unique features dictate specific quality requirements. It's crucial to align these characteristics with desired quality standards, emphasising the importance of understanding quality from the business perspective.

#G3 MANAGE TESTING TEAM ACCORDING TO TESTING STRATEGY

The optimized management and employment of human resources is a way to improve the testing process, especially in the context of DSP, where technical skills and theoretical knowledge are vital. Ensure your team's work process is well-managed and they possess the required knowledge to carry out planned testing activities effectively.

#G4 PLAN TIME ALLOCATION

Testing can be significantly hampered by time pressure, causing teams to rush or overlook vital activities. Especially in the DSP context, creating complex tests can be time-consuming, and executing certain tests, like performance tests, may also take a significant amount of time. It's essential to plan and optimise time resources meticulously. This guideline offers insights on preventing delays, alleviating time-induced pressure, and sidestepping potential contractual issues.

#G5 PLAN FINANCIAL RESOURCE ALLOCATION

Financial resources are vital for testing DSP applications. Resources are required for numerous activities, including hardware hiring, service outsourcing, training, consultancy, software acquisition, and test infrastructure maintenance. Therefore, it is a precaution to anticipate allocating financial resources to guarantee resources for top-priority testing tasks.

#G6 DEVELOP A TEST DATA STRATEGY

Test data should effectively identify application defects, confirm feature functionality as intended, and ensure compliance with non-functional requirements. This guideline highlights the primary sources of test data and provides insights and recommendations to assist in developing a test data set. It also includes a summary of data quality characteristics pertinent to DSP application testing.

#G7 BE AWARE OF PARTICULAR ISSUES IN DATA STREAM PROCESSING APPLICATION TESTING

DSP applications have specific characteristics that must be considered during test planning and execution. This guideline highlights three particular concerns: timing issues, the non-deterministic nature of distributed DSP, and fault tolerance requirements. Each concern is briefly introduced, followed by relevant observations and recommendations for associated testing strategies.

Example scenario: Stream Data on an Electric Scooter Rental Application

The application of these guidelines is versatile, allowing adjustments based on participants' expertise and specific project requirements. They can serve as a sequential guide or reference for targeted queries. Below, we provide a simplified example to illustrate their practical use. Inspired by a real-world case, this scenario showcases the development of a test plan, adhering to the guideline flow from #G1 through #G7.

https://alexandresgv.github.io/

Motivating and Demystifying IoT Learning with Hackathons in a Maker Space, Low-code Development and Rapid Prototyping

Kiev Gama
kiev@cin.ufpe.br
Centro de Informática - Universidade Federal de Pernambuco (UFPE)
Recife, Brazil

I'm a
CS/IS student.
IoT is
not for me.

What if
you use a low
code tool and
create stuff
in a hackathon?

Hackathons as an Informal Learning Platform

Arnab Nandi
Computer Science & Engineering
The Ohio State University
arnab@cse.osu.edu

Meris Mandernach
University Libraries
The Ohio State University
mandernach.1@osu.edu

ABSTRACT

Hackathons are fast-paced events where competitors work in teams to go from an idea to working software or hardware within a single day or a weekend and demonstrate their creation to a live audience of peers. Due to the "fun" and informal nature of such events, they make for excellent informal learning platforms that attract a diverse spectrum of students, especially those typically uninterested in traditional classroom settings. In this paper, we investigate the informal learning aspects of Ohio State's annual hackathon events over the past two years, with over 100 student participants in 2013 and over 200 student participants in 2014. Despite the competitive nature of such events, we observed a significant amount of peer learning – students teaching each other how to solve specific challenges and learn new skills. The events featured mentors from both the university and industry, who provided round-the-clock hands-on support, troubleshooting and advice. Due to the gamified format of the events, students were heavily motivated to learn new skills due to practical applicability and peer effects, rather than merely academic metrics. Some teams continued their hacks as long-term projects, while others formed new student groups to host lectures and practice building projects on a regular basis. Using a combined analysis of post-event surveys, student academic records and source code commit log data from the event, we share insights, demographics, statistics and anecdotes from hosting the hackathons.

1. INTRODUCTION

Hackathons are events where computer programmers and others involved in software development, including graphic designers, interface designers and project managers, collaborate intensively on software projects in a short period of time, typically 24–48 hours. Traditionally, software companies have held or sponsored hackathons to induce problem solving through creative play. Though hackathons have existed since the 1990s, they have focused on emphasizing the key aspects of learning as a critical point of the event. A university-sponsored hackathon gives developers an opportunity to compete, develop products, and potentially make important academic connections with faculty and labs. At Ohio State, the first university-wide, full-scale hackathon was held in November 2013 over a 24 hour period. There were 103 participants, consisting of 34 teams of which 26 gave demonstrations of their work. Building on the success of the first year, in October 2014 our hackathon featured over 200 participants forming 49 teams.

Figure 1: 2 hours remaining: The 2013 Hackathon

In 2013, projects built during the Hackathon ranged from an app to aid suicide prevention (a collaborative project by a Psychology graduate student and 3 CSE students), an alarm that read the weather, to a class selector for CSE that bundled class dependencies using clustering. In 2014, projects ranged from an app for checking into events from doctor appointments to class attendance; to a motorcycle-mounted sensor data collection device.

2. RELATED EFFORTS

There is a tremendous amount of interest in making education more engaging and interesting to students. Beyond traditional curriculum, several programs have adopted project-based approaches [15] that allow students use a critical problem-solving approach while simultaneously integrating information from a variety of topical lectures and multiple disciplines. Though informal education [6, 9, 17] has been considered an exciting and compelling way to get students introduced to Computer Science in higher education, the barrier to entry has always been relatively high because of the steep learning curve and specificity of concepts used in the discipline. This paper examines informal learning through a hackathon by analyzing team activity (e.g., commit histories), participant academic performance vs. non-participant performance (e.g., GPAs), and individual feedback from hackathon participants.

SIGCSE '16, March 02 - 05, 2016, Memphis, TN, USA

ISBN 978-1-4503-3685-7/16/03…$15.00
DOI: http://dx.doi.org/10.1145/2839509.2844590

SIGCSE'16

Hack.edu: Examining How College Hackathons Are Perceived By Student Attendees and Non-Attendees

Jeremy Warner
UC Berkeley
Berkeley, CA, USA
jeremy.warner@berkeley.edu

Philip J. Guo
UC San Diego
La Jolla, CA, USA
pg@ucsd.edu

ABSTRACT

College hackathons have become popular in the past decade, with tens of thousands of students now participating each year across hundreds of campuses. Since hackathons are informal learning environments where students learn and practice coding without any faculty supervision, they are an important site for computing education researchers to study as a complement to studying formal classroom learning environments. However, despite their popularity, little is known about why students choose to attend these events, what they gain from attending, and conversely, why others choose *not* to attend. This paper presents a mixed methods study that examines student perceptions of college hackathons by focusing on three main questions: 1.) Why are students motivated to attend hackathons? 2.) What kind of learning environment do these events provide? 3.) What factors discourage students from attending? Through semi-structured interviews with six college hackathon attendees (50% female), direct observation at a hackathon, and 256 survey responses from college students (42% female), we discovered that students were motivated to attend for both social and technical reasons, that the format generated excitement and focus, and that learning occurred incidentally, opportunistically and from peers. Those who chose not to attend had mixed and negative experiences cited discouraging factors such as the potential distraction, lack of substance, an overly competitive culture, an intimidating culture, and fears of not having enough programming experience. We conclude by discussing ideas for making college hackathons more broadly inclusive and welcoming [illegible] our study.

CCS CONCEPTS

• Computers in Society → General

KEYWORDS

college hackathon; informal learning; situated learning

1 INTRODUCTION

A hackathon is an event where people gather in one location to create prototype software projects within a short time period, usually from one day to one week. This term originated in 1999 when OpenBSD and Sun Microsystems hosted hackathons for developers to create software on their respective platforms [6]. These events have become popular over the past decade and now exist in several forms: 1.) Technology companies host hackathons to promote their APIs [11, 22], 2.) open-source software projects host hackathons to make concentrated bursts of progress [6, 30], 3.) governments and nonprofits host civic hackathons to create technologies for social good [7, 21], and 4.) universities host hackathons for students [24].

One of the most prominent genres of hackathons to arise in recent years is the *college hackathon*, which is usually a 24- to 36-hour event held on a college campus where students create software projects (often in teams) and optionally compete for prizes. Hundreds of students attend large hackathons at schools such as MIT, UIUC, and the University of Michigan, with their bus or plane fares paid by corporate sponsors who view these events as recruiting opportunities. College hackathons started in the U.S. in 2010 [18] and have now become popular enough that there is an organization, Major League Hacking [5], that tracks the status and progress of attendees throughout each "season" (i.e., semester).

Major League Hacking sponsored over 200 college hackathons with over 55,000 total participants [5, 24]. We also found that hackathons have occurred at all 47 of the 47 top-ranked computer science departments in the U.S., according to the U.S. News Top 40 rankings [2] (there are 47 since eight schools tied for rank 40). Press articles [24] and personal anecdotes indicate that hackathons are now well-advertised social events in computer science departments, with students viewing them as opportunities for project-based learning, socializing, community building, and job hunting.

However, despite the rapidly rising popularity of hackathons on college campuses around the world, little is known about why many students choose to attend them, why they find it engaging to spend their weekends coding intensively, what they gain from attending, and, conversely, why other students choose not to attend.

Researchers have recently begun to study corporate [22], scientific [30], and civic [7, 15, 21] hackathons, which are attended mostly by working professionals. Our paper complements this existing literature by presenting one of the first studies of college hackathons. Since these events are popular on-campus venues for informal and situated learning [24] where students learn about programming-related technologies from each other without any faculty supervision, college hackathons are an important yet underexplored site for computing education researchers to study as a complement to studying formal classroom learning environments.

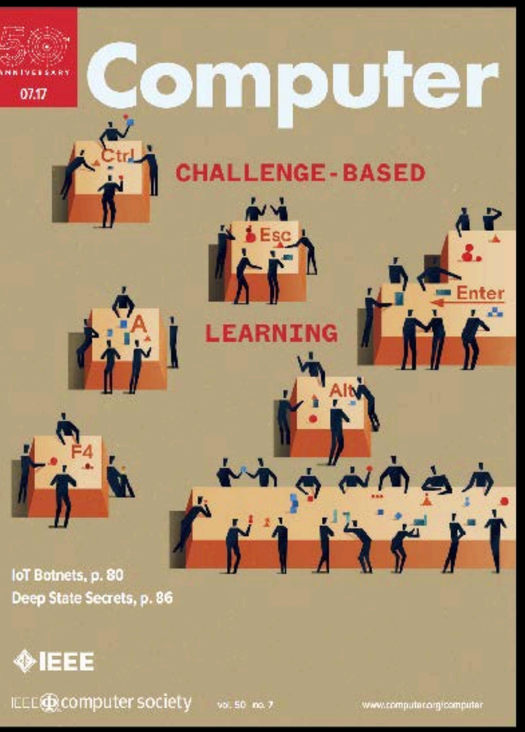
In this paper, we focused our exploratory study on surfacing the perceptions of both students who attended and those who chose not to attend college hackathons. To get a broad range of opinions, we used data from semi-structured interviews with six attendees (3

ICER'17, August 18-20, 2017, Tacoma, WA, USA.

DOI: http://dx.doi.org/10.1145/3105726.3106174

ICER'17


KEEP
CALM
AND
HACKATHON

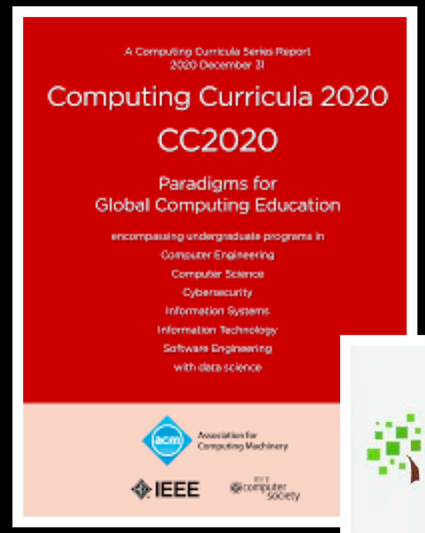


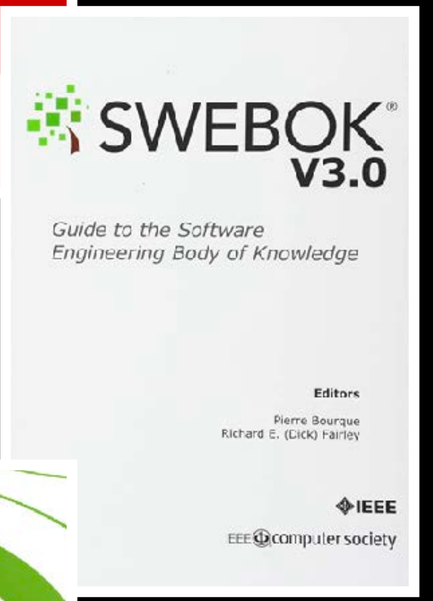
“Challenges and competitions offer a compelling platform for engaging students and lifelong learners in new technologies and skill development.”

Guest Editors, IEEE Computer Magazine - July/2017

Internet of Things (IoT) has no endorsed curriculum:

It has not yet reached the status of an academic discipline with a globally recognized curriculum recognized or endorsed by institutions such as ACM or IEEE





Importance of non-technical skills in software engineering
E.g. professionalism,
group dynamics,
communication skills,
cognitive skills,
behavioral attributes.

Context: 60h IoT elective course

Target audience
Computer Science and Information Systems students

Topics covered
Communication models (synchronous/asynchronous)
IoT Plaftorms
Protocols and APIs (HTTP/REST, CoAP, Web Sockets, MQTT, etc)
Reactive Programming
Node.js and Node-RED
Basic IoT prototyping using a Raspberry Pi

Classes
Lectures (classroom)
Practical (laboratory and home assignments)

Grading
Assignments
Final project in a weekend long hackathon (no sleep-over)

Hackathon outside the campus: Maker Space in the City Innovation Hub
Start: Saturday 9:00 - 19:00
End: Sunday 9:00 - 19:00
Participants: 2 Cohorts of CS/IS students (22 and 34, respectively)
Team: mentors (Computer Engineering students) + Teacher

Ethics

Informed Consent Form

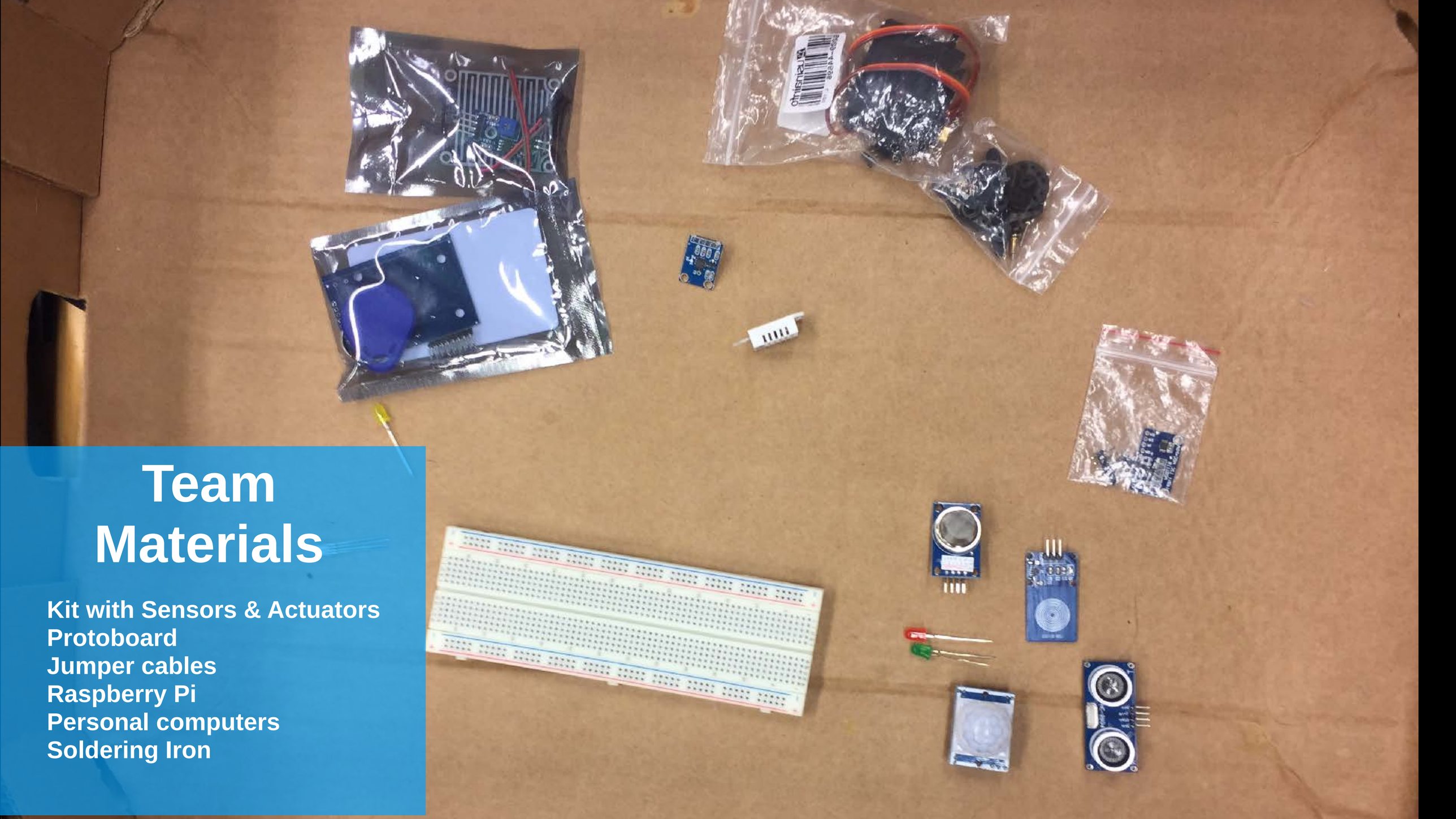
Confidentiality about interviewees identity

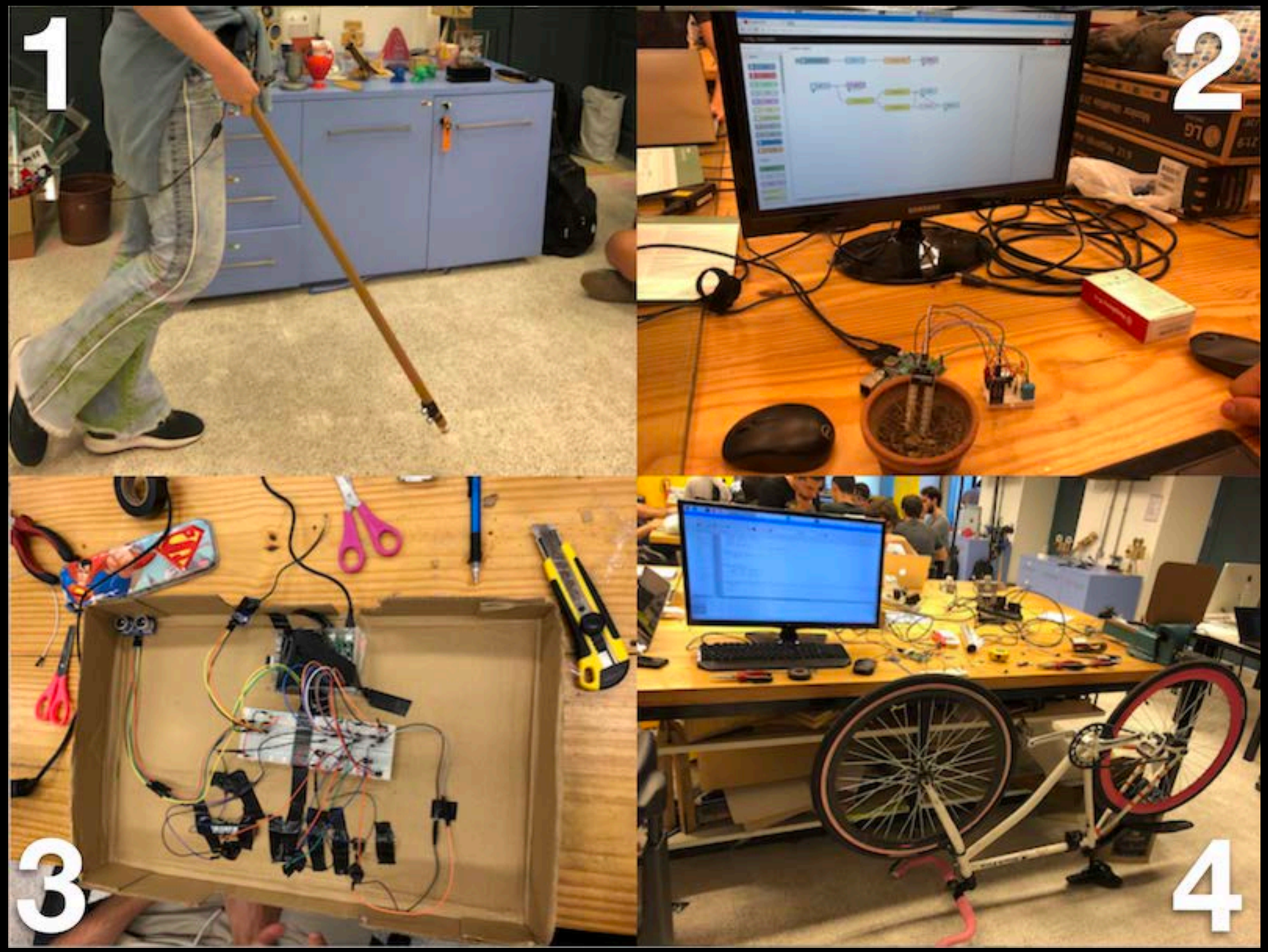
Authorization of image usage

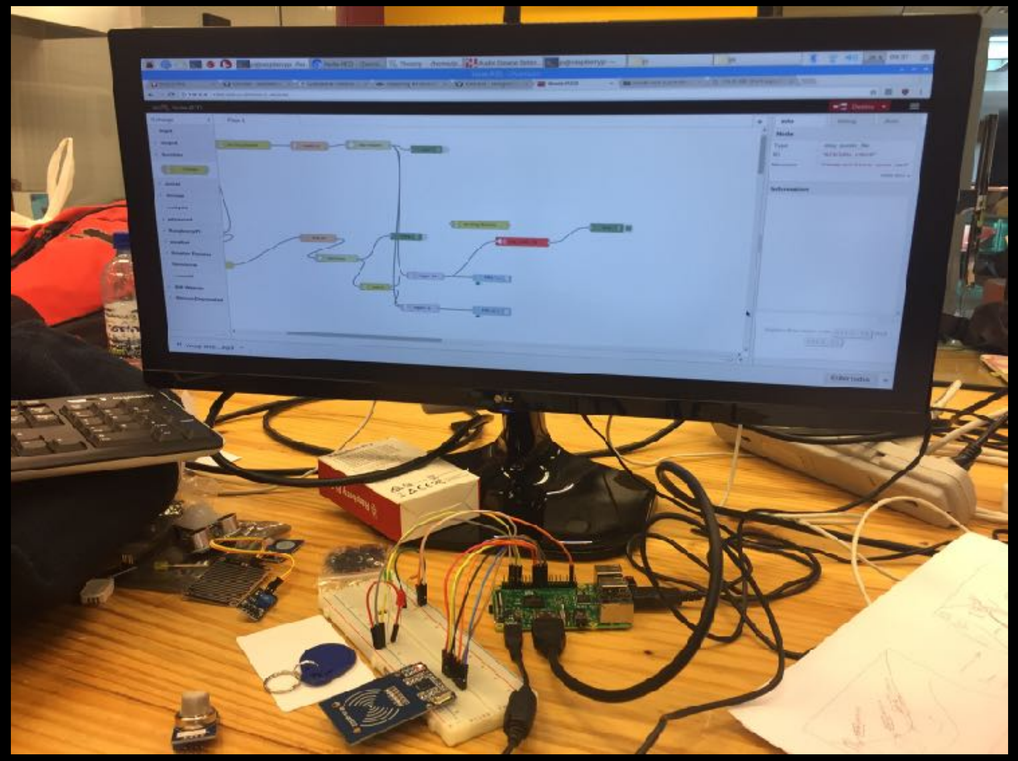
Students could leave the hackathon with no penalty

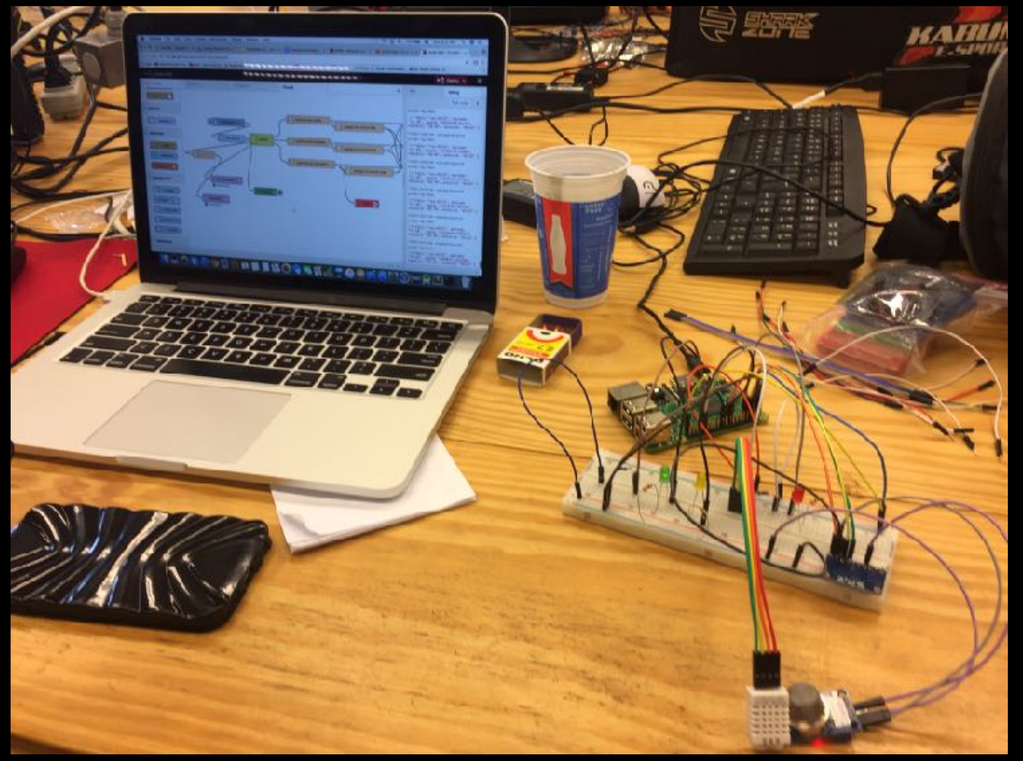
Team Materials

Kit with Sensors & Actuators
Protoboard
Jumper cables
Raspberry Pi
Personal computers
Soldering Iron




1
2
3
4





Data Collection

Cohort 1: Individual interviews

Participant	Bachelor	Hackathon experience
C1P1	Computer Science	N
C1P2	Computer Science	Y
C1P3	Computer Science	Y
C1P4	Information Systems	N
C1P5	Computer Science	Y
C1P6	Computer Science	N
C1P7	Information Systems	N
C1P8	Information Systems	N
C1P9	Information Systems	N
C1P10	Information Systems	N

Cohort 2: Group interviews

Participant	Team	Gender	Bachelor	Hackathon experien
C2P1	1	F	IS	Y
C2P2	1	M	IS	Y
C2P3	1	M	CS	Y
C2P4	2	M	CE	N
C2P5	2	M	CE	N
C2P6	3	F	CS	N
C2P7	3	M	CS	Y
C2P8	3	M	CS	N
C2P9	4	F	CS	Y
C2P10	4	M	IS	Y
C2P11	5	M	IS	Y
C2P12	5	M	IS	N
C2P13	5	M	IS	N
C2P14	6	M	IS	N
C2P15	6	M	IS	Y
C2P16	6	M	IS	N
C2P17	7	M	IS	N
C2P18	7	M	IS	N
C2P19	7	M	IS	N

Interview guide

Learning

– What did you learn in this event?

– How would you generally describe the experience of participating in this hackathon?

– What influence did the maker space environment have in your learning experience?

Event format

– What would you say about the authenticity of this event as a real hackathon? (experienced hackathon participants only)

– How would you compare a project in a hackathon to a typical project assignment done over a few weeks?

Individual and social aspects

– Explain if you had any expectations for this hackathon and if they were fulfilled.

– How did you feel during the event?

– Talk about social aspects involving people from your team, other teams, or mentors.

Data Analysis

Transcription (portugues)

Atlas.ti tool

Thematic analysis using a deductive approach based on the following themes:

- Learning aspects;
- Experience;
- Maker space influence;
- Hackathon authenticity;
- Hackathon as a project;
- Expectations;
- Feelings;
- Social aspects

Learning Aspects

Some subcategories/subthemes generated:

learning approach;
soft skills;
hardware;
protocols and programming;
software engineering

Learning Aspects -> Learning approach subcategory

codes:

learning approach;
soft skills;
hardware;
protocols and programming;
software engineering

During classes, I was doing stuff with the Raspberry Pi and I was just following what was in the tutorial. I wasn't getting it. But when instead of just following the slides we were searching the Internet to see how to connect the different sensors ... I finally understood what I'm doing with the Raspberry here, so, I left with a much better idea than I had in terms of prototyping with hardware

Learning Aspects -> Soft skills subcategory

codes:

communication
presentation skills;
problem-solving;
creative thinking;
decision taking

> *"In a conventional project, communication is sometimes not immediate, but in a hackathon, communication has to be constant"*

Learning Aspects -> Hardware subcategory

codes:

actuators;
sensors;
prototyping;
and Raspberry P

"The way I had studied hardware during a course before the university, it was kind of stressful, it's what made me give up hardware-related stuff and want to banish that area from my life. But at the hackathon yesterday, it was totally different"

Learning Aspects -> Protocols and programming subcategory

codes:

Web sockets,
REST,
Node-RED,
JavaScript,
Reactive Programming

"I learned Node-RED very quickly. Kind of doing 2 exercises and then develop a whole solution using it"

Learning Aspects -> Software engineering subcategory

codes:

design decisions
component integration;
interface mockup;
testing;
scope management

"I realized, this format is very good because we made a decision based on `will it be better to use MQTT? will it be better to use Websockets?' And this decision-making was what made us study the subject better."

Maker space influence

Positive codes:

cozy;
appropriate layout;
inspiring;
motivating

Negative codes:

noise;
problems with sensors;
infrastructure limitations;
underutilized equipment

"The environment is awesome ... but maybe try to leave someone there to guide us on using the 3D printer or the laser cutter that was there."

Hackathon authenticity

Codes:

theme;
collaboration;
collocation;
focus;
mentoring;
sense of urgency

> *“The sense of urgency that a hackathon typically has, everyone working at the same time, trying to make something work."*

Hackathon as a project

Codes:

preferred format;
fight procrastination;
practice-oriented;
alternative to exams

> *"This format of doing a project in 2 days eliminates a lot of procrastination, which I think is the biggest problem of a regular project”*

Expectations

Codes:

working with hardware;
applying knowledge;
low expectations;
exceeding expectations

My biggest expectation, in fact, was to apply several topics and it was cool that I was able to do it at the time.

Feelings

Positive codes:
excitement;
enthusiasm;
fun;
satisfaction;
determination;
being challenged

Negative codes:
anxiety;
stress;
frustration;
fatigue

"I started excited, but then I left a little frustrated, but not for the event itself. It was more about the idea that my group implemented. The event in itself, I really enjoyed it and even consider participating in a hackathon in the future."

Social aspects

Codes:

collaboration;
interaction with teams;
isolation from other teams;
meeting people;
team bonding

"There is always someone from another team showing up, so you visit another team, exchange some ideas with that person and end up reaching the solution that you could not reach before."

Conclusions

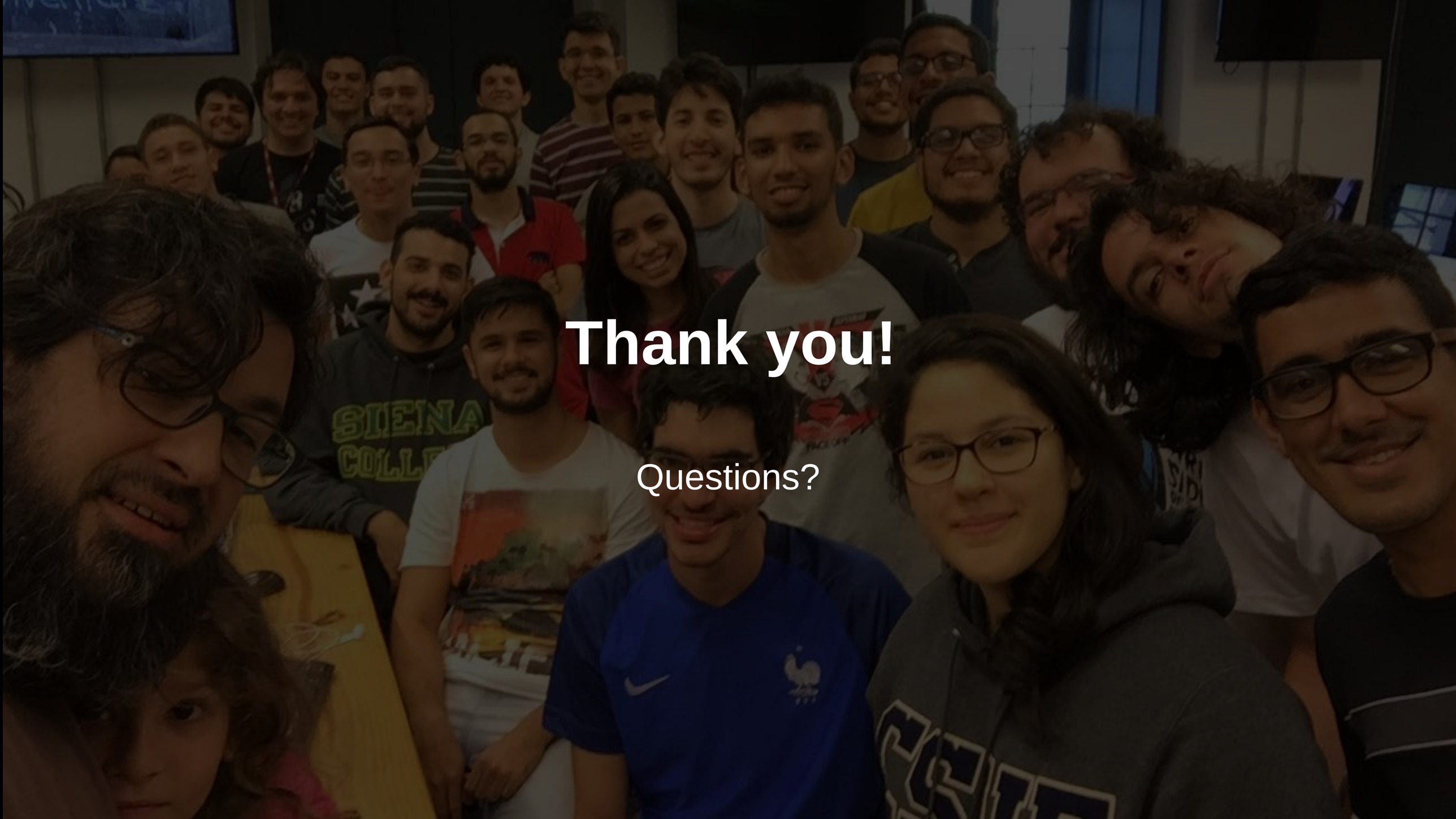
Hackathon format offers advantages over conventional project formats, allowing for more time to learn, experiment, and apply knowledge.

The hackathon provided an authentic learning experience, promoting practical, hands-on learning and the development of soft skills.

Students gained valuable experience in hardware-related skills and various aspects of software engineering.

Positive feedback on the use of Node-RED and the maker space environment, but areas for improvement include sensor issues and infrastructure limitations.

Among methodological limitations, there is possible bias of students being interviewed by lecturer



Thank you!

Questions?

One more thing…

Si vous connaissez des developpeurs TDAH ou du spectre autiste, envoyez moi un mail:

kiev@cin.ufpe.br

Merci!