

Weekly Diary

Master thesis course in Computing Science

Pina Kolling

- Week 3 • Introduction and first work on project plan
- Week 4 • Finish project plan, start setting up code on my computer
- Week 5 • First research on the topic, including finding literature, set up Git and \LaTeX for master thesis (on work laptop, my laptop and stationary pc), document execution of code
- Week 6 • Set up code on my computer and first familiarizing with codebase, finding literature, document execution of code
- Week 7 • Implementing, documenting the process and literature research
- Week 8 • Implementing, documenting the process and literature research and vacation with my grandmother (she turns 90 ♡) so probably reduced work capacity
- Week 9 • Implementing, documenting the process and literature research, evaluating if it is possible to obtain colour-corrected video results using JIT and then specify or readjust the focus
- Week 10 • Implementing, documenting the process and literature research and creating slides for the midterm seminar
- Week 11 • Implementing, documenting the process and literature research, midterm seminar
- Week 12 • Implementing, documenting the process and literature research, search or implement offline colour correction software and other suitable solutions for comparison (if needed)
- Week 13 • Implementing, documenting the process and literature research
- Week 14 • Implementing, documenting the process and literature research
- Week 15 • Writing
- Week 16 • Writing
- Week 17 • Writing
- Week 18 • Writing
- Week 19 • Finalizing, reworking and applying feedback
- Week 20 • Hand in final version of the thesis
- Week 21 • Create Slides for the thesis seminar
- Week 22 • Thesis seminar (defence and opposition)
- Week 23 • Opponent thesis report

Week 3

16.01.24, Tuesday

- First meeting at university

17.01.24, Wednesday

- Setting up file and git for weekly diary
- Writing first mail with topic specification to Vicenç Torra
- Keeping my supervisor at Codemill (Urban Söderberg) in the loop
- Begin with project plan (setting up the file, etc.)

18.01.24, Thursday

- Getting a supervisor from university assigned (Cem Okulmus)
- Continue work on project plan:
 - Introduction
- First research on:
 - Just-In-Time (JIT), WebRTC, h.264, Melt framework
 - Infrastructure model of the system

19.01.24, Friday

- Continue work on project plan:
 - Problem formulation
 - Method
 - Infrastructure model

20.01.24, Saturday

- Continue work on project plan:
 - Evaluation methods
 - Self assessment
- Looking into previous master thesis that was written at Codemill

Week 4

Info: The Codemill logo marks the days at which I have been at the company's office.

22.01.24, Monday

- Set up git on other computer
- Continue work on project plan:
 - Resources
 - Read again and correct
 - Deciding on a title
- Send projectplan to supervisor at Codemill (Urban Söderberg)
- Send projectplan to supervisor at university (Cem Okulmus)

23.01.24, Tuesday

- First meeting with supervisor at university (Cem Okulmus)
- Rework and additional info on project plan:
 - Change JIT definition
 - Add timeline
 - Add challenges
- Add timeline weekly diary and adapt setup of weekly diary (counting in calendar weeks)

24.01.24, Wednesday

- Prepare laptop to set up code on it

25.01.24, Thursday

- Setting up the code on my laptop at Codemill
(generating ssh key, cloning git repositories, installing node.js and docker, etc)
 - Problem: My RAM was not sufficient and the code could not be executed
 - Solution: Looking for a company laptop to execute the code

26.01.24, Friday

- Setting up the code on the new laptop at Codemill
 - Problem: Space in user name on the device which makes some paths not working
 - Solution: Setting up windows with a new user (to do)
 - Info: The code has not been run on a windows system before

Week 5

29.01.24, Monday

- Being sick ☹

30.01.24, Tuesday

- Being sick ☹

31.01.24, Wednesday

- Being sick ☹
- Setting up new windows user
- Setting up code on new laptop (frontend running but problems with backend/docker container)
- Document execution of code:

Setting up the code

- Generate ssh key (`ssh-keygen`) and add to GitLab
- Clone git repositories (`jit-webrtc` and `accurate-player-3-core`)
- Install node.js and set path variables for npm (and yarn)
- Install and run docker
- Execute `jit-webrtc` code with command from README with `docker/main/main.sh --threads 16 --port 8080 $VIDEOFILE` (not working!)
- Execute accurate player code (run `npm install --force`, `npm install yarn` and then `npm start`, resolve errors, fix dependency problems with `npm audit fix --force` (potentially twice))

01.02.24, Thursday

- Being sick ☹
- Installing slack
- Looking into the backend/docker problem
- Setting up WeeklyDiary git and tex file on Codemill-laptop

02.02.24, Friday

- Being sick ☹
- Trying to solve the docker/backend problem (still unsolved)
- Setting up git and tex file for master thesis on stationary PC
- Creating title page
- Structure for thesis
- First research and adding of references
- First writing in introduction

03.02.24, Saturday

- Being sick ☹
- Trying to solve the docker/backend problem (still unsolved):
 - Inspecting `main.sh` script file
 - Inspecting docker problems regarding windows
 - `docker-run.sh` not found or opened... Changing the path does not seem to help and the file does exist (feedback: no such file or directory)
 - Setting up python

Week 6

05.02.24, Monday CODEMILL

- Run backend/docker (finally!):
 - Make changes in `main.sh` (last line): remove `--device /dev/fuse` and change path to `//opt/jit-webrtc/jit/docker-run.sh`
- Problem: Connectivity issues between browser and docker
- Solution: Installing Linux and not running it under Windows

06.02.24, Tuesday

- Installing Linux Ubuntu 22.04 (not booting after updates)
- Installing Linux Ubuntu 23.10 (does not work at all)
- Researching and writing an introduction about Codemill
- Installing Linux Ubuntu 22.04
 - The problem originated from the NVIDIA graphics card. Before updating, the drivers had to be installed with `sudo ubuntu-drivers autoinstall`.
- Installing docker, node.js, git, miktex, textstudio and cloning repositories
- Adding to weekly diary: Codemill logo for each day I was at the company's location
- Executing frontend
- Executing backend in docker container

07.02.24, Wednesday CODEMILL

- Connecting backend and frontend
- Running the code
- Setting docker timeout from 15s to 150s in `main.py`
- Create private git repositories to store work progress
- Research on WebRTC and transcoding and looking into code of JIT-WebRTC
- Adding labels and references to structure of master thesis tex file
- Adding README files of code base to master thesis tex file

Running the code

- Frontend:
 - Open folder `accurate-player-3-core/packages/demo` in terminal
 - Execute `JIT_BACKEND=http://localhost:8080 yarn start` or `./start.sh`
- Backend:
 - Open folder `jit-webrtc` in terminal
 - Execute `docker/main/main.sh --threads 16 --port 8080 https://s3.eu-central-1.amazonaws.com/accurate-player-demo-assets/timecode/sintel-2048-timecode-stereo.mp4`
- Open <http://localhost:5000/controls/jit/index.html> in browser

08.02.24, Thursday

- Looking into the code and the system's components, summarizing and taking notes in the thesis file:
 - Audio Video Interleave (AVI)
 - Named pipe
 - Create diagram of system
 - Python documentation
 - Web services and REST API
- Structure of the thesis