

# Natural and Artificial Robotics design portfolio (2021)

## 1 INTRODUCTION

Your portfolio is an **individual** submission describing **your** design journey. It is also a way to keep track of **your** *intellectual property* (IP). Your portfolio could contain any of your *intellectual property* including pictures, sketches, drawings, etc.

A portfolio in this case is a collection of files, referencing your designs including drawings, commentaries, and documented calculations. This portfolio will be entirely digital so any handwritten notes must be scanned in. If you keep notes on 'One Notes' these will need to be transferred to one of the acceptable file formats (see below).

You can only share pictures, videos, CAD drawings, etc with your collaborators if you acknowledge the creator(s). Acknowledgement must be the persons name and a date - or approximate date - of creation. Acknowledgements can be in the index file or in a caption accompanying the image. Thus for example Ada takes a video of a working prototype of built by Bob and Carol. Then Carol must acknowledge that the video was taken by Ada and Bob was her collaborator. David, if he has had no contribution to that part of the work, should not include the video in his portfolio.

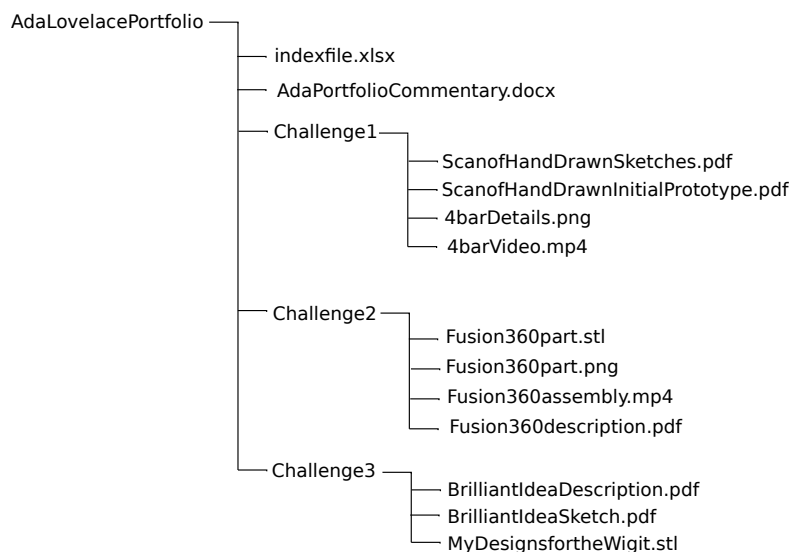


Figure 1: One possible portfolio file structure. Feel free to use your own, for example if you like all your videos to be in one directory and all your code to be in another.

## 2 PORTFOLIO SUBMISSION

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The portfolio can contain any number of directory and files and should be submitted in a single zip archive. It should not be a dump of all your files. It should be a considered presentation that represents your achievements.

Examples of files to include

1. Hand drawn sketches and hand written notes, you should date all pages and digitise as a pdf.
2. Photographs or videos of any physical models or prototypes.
3. Code files, documents, images, videos, 3D content. Exclude any document that could not be read without installing additional programs. Also exclude anything that is visible on the internet, although you can reference such material.

Acceptable file extensions would be

scans, Matlab publish	.pdf
Matlab code	.m
images	.png .jpg .svg
videos	.mp4
3D content	.stl
Word/LibreOffice	.docx/.odt/.txt
Spreadsheet	.xlsx/.ods
python code	.py

You may include content produced by other members in your group as an illustration of the group project but this content must be clearly acknowledged, you will loose marks if you fail to give an attribution for any work that is not yours.

Any single piece of work (file) that is collaboration between yourself and another member of your group must indicate your percentage of effort. For example, 'Fusion360 model of wheel, design by T.Stark (50%) based on discussions and drawings by L. Meriwether (50%)'. This attribution should be given in the index file, and if possible also given in the work.

## 2.1 DIRECTORY STRUCTURE

## 2.2 PREPARING YOUR PORTFOLIO FOR SUBMISSION

Your portfolio must be digitised. Please put all files together as a single .zip submission

The submission **must** contain at least

1. a commentary
2. an index file

## 2.3 INDEX FILE

You must include an index file. The index file is simply a list of every files in the portfolio.

Every file named in the index file and submitted in the portfolio needs a caption or a short description. This description should say what the file is, identify any collaborators and their roles. The index file could be maintained and submitted as a spreadsheet.

A structure for the index file could be

File name	Caption explaining the context of the file	Who created the file	origin date
StumpySupport.stl	Printed version of the robot support structure	Clarke (30%) detail design; Meriwether (70%) concept and sketches	21/02/2021
robot.jpg	Picture of stumpy showing the resonant structure	Meriwether	1/04/2021
Commentary.docx	Portfolio commentary	Meriwether	5/04/2021
etc	etc	etc	etc

## 3 PORTFOLIO COMMENTARY

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### 3.1 DESIGN PLAN, ASSESSMENT, FUTURE REVISION, LEARNING, FEEDBACK

The portfolio commentary be around 5 pages of words, this is not a strict limit but is to try to focus you on what you feel is important to say. This page limit does not include any images, code, sketches, drawings, cad renderings etc. You can include any images, code, sketches, drawings, cad renderings etc in the commentary, in the appendix or as separate files in the zip archive. All images should be captioned and attributed in an appropriate way.

If you absolutely need to go over 5 pages to say everything you need to say then do, but I am looking for a concise and well presented design journey not an epic saga.

For each of your designs your commentary should contain

1. Your design plan, what were you trying to achieve.
2. Your assessment of how well it worked, and if it didn't work, what would need to be fixed.
3. What broke or is likely to break (if it didn't break then test it until it does). Explain why it broke and how it might be fixed in a future version.

You should also include

1. A short introduction and conclusion
2. A short commentary of what you feel you have learn from this part of the module.

Please also give any feedback on how you think this module might be improved for subsequent students (optional).

The commentary on your portfolio should be a maximum of 5 pages. The commentary must have your name as an author and be given a title. Other suggested sections might include abstract, introduction and conclusions.

## 4 SUBMISSION CHECK LIST

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Check that:

1. You have a portfolio commentary
2. Your name is on the portfolio commentary
3. You have a portfolio index file (spreadsheet or text document)
4. You have run any text documents through a spell checker.
5. All pages are numbered and all reports are dated.
6. You have acknowledge your collaborators in both the commentary and against any *intellectual property*.
7. You are submitting all files in a .zip archive

## 5 DEADLINE

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Deadline for submission is 19th April 2021 at noon.

## 6 THE PORTFOLIO MARKING

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The portfolio commentary must have your name on it. The portfolio should consist of pertinent documents along with a short commentary, and should be submitted as a zip archive.

Marking scheme (out of 40)

Portfolio commentary	18
Portfolio index	8
Portfolio contents	14

1st class	Commentary is complete, succinct and within 5 pages. All <i>intellectual property</i> is attributed. Designs show a high level of creativity as well as attention to detail. Supporting evidence (including mathematical models) is understandable. Portfolio file structure is logical
2nd class	Commentary is missing elements. Commentary index file are missing attributions. Important items missing. Good creativity. Important details missing.
3rd class	Commentary is unfocused. Files are unattributed or missing in the index file. It is not obvious why some of the files have been included in the portfolio.