

UROP 101 - Finding 'the One'

*What I have done **and** what I wish I could know – A
painless retrospective review*

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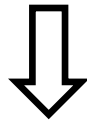
1 February 2024



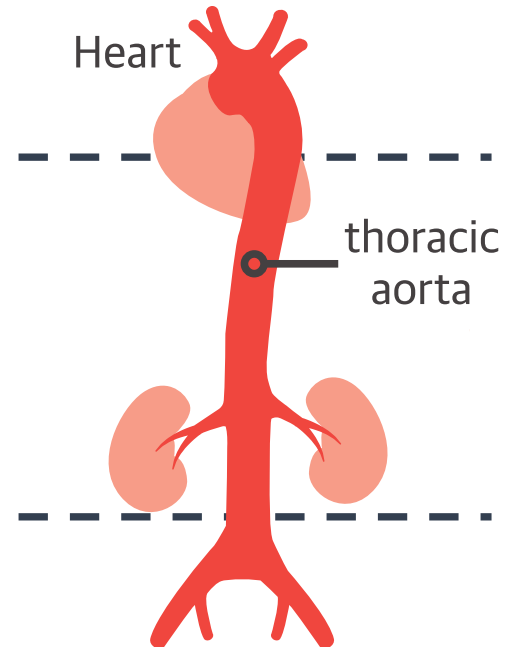
About me...



MEng Biomedical
Engineering (2019 - 23)



Research PG, Chemical
Engineering, (2023 - ?)



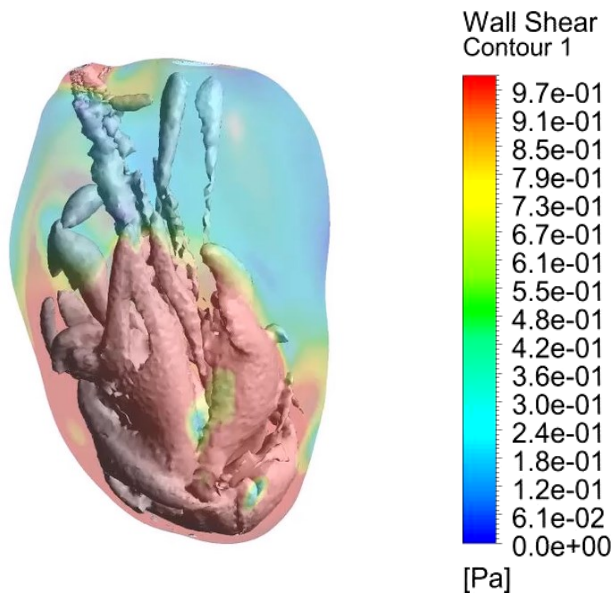
*“The one who betrayed **EE stream**, ended up being a **biomechanics guy**”*

*Struggled with **simulations**
Fighting with **divergence**
mending **hearts & myself***

- 2 funded **research** UROP in 2021 and 2022 with *Dr. Choon Hwai Yap*
 - 2 research journal + 2 conference abstracts
 - ended up being a FYP
- 1 funded **teaching** UROP in 2022 with *Prof. Reiko Tanaka*

My first research experience

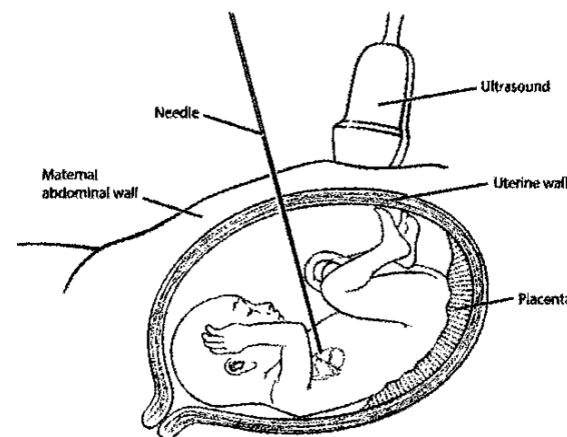
LV Vortex Dynamics



- Impinges apex
- Additional aortic regurgitation jet

Wong, H S & Li, B et al. (2023)

- Some babies are born with a severely underdeveloped left ventricle, this is called hypoplastic left heart syndrome.
- It is reported with a balloon catheterization in an early stage, this mal-growth event can be inverted.



- **Is this true?** What are the fluid manifestations associated with the procedure?



**Computational
fluid dynamics!**

To me, this UROP is...

- A light touch of CFD and computational mechanics.
 - Later encouraged me to take relevant courses beyond bioengineering
 - A skillset in pipelining CFD sim. that benefits my work until today
- A bridge between the theoretical foundations and applications.
 - Teaching in fluid mechanics and modelling
- A very first taste of research planning, implementation, interpretation and communication. **Mostly importantly, judgement.**

Make an action!

Identify your
research interest



Where is my
potential supervisor?

- What subject area interests you?
- What do you not want to do within that subject area?
- Where will this research experience take you?

- Who are the key academic groups and researchers?
- **Linking up and showing your interest!**



Funding and
Registration

You will be asked to provide...

- Your motivation and expectation
- Brief summary of the research in layperson words
- Provisional research outcome

Mutual expectation



Alexis M.
March 2022

“I explained (to Union Council) we had explored the idea of proposing a fully funded UROP for every student... Here the committee was divided on the **necessity** and **feasibility** of this. Some have students do great things for 8 weeks, and some professors simply have stopped proposing UROPs because of the **strong learning curve of the processes in their lab...**”

“Bottom line, a **UROP for everyone is not very feasible**, because of the 8 weeks format: lots of supervision needed, many research groups can't commit that much to **training students that ultimately will leave soon.**”

Final naggings...

- **Pay attention to the deadlines** – funding application, registration, reflective report submission (for extra ECTS).
- **Funding applications - Better safe than sorry.** Be explicit, professional, and always motivated!
- **Involvement is the key to your experience** – will you align yourself as a PhD student in the group?
- ***Good luck!***

