

Navigating through RSE as an undergrad*

RSE Career Talks and Panel

ETH Zürich

a very self-centered talk*

*mostly personal opinions

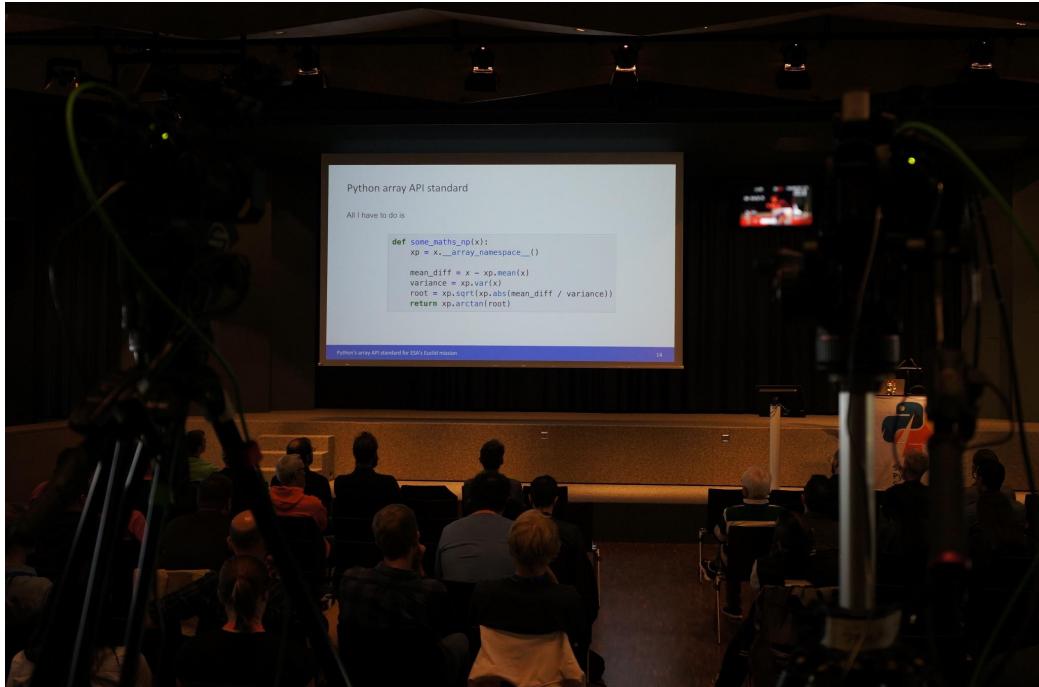
Introduction





He is presenting his RSE work carried out at UCL at the Swiss Python Summit 2025

This is Saransh





We need to go back

But how did he get here?

Meme calendar 2020





He joined a Bachelor's in Computer Science and Math program



Software engineer

Then



When I graduated,
many big tech
companies contacted me
but I had to select one

Now



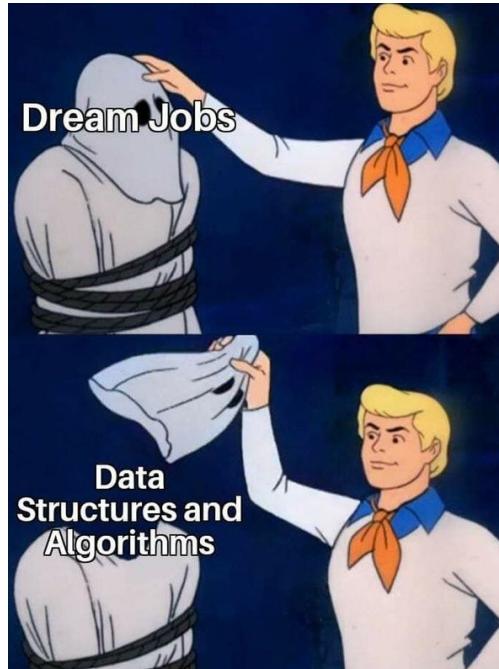
I just need a job
that can cover my rent

Pandemic had just hit,
big tech was hiring in
bulk, so he decided to
go with the flow



He realised he does not really like building apps or websites, neither does he want to be a software engineer

A year of fancy technologies + Data Structures and Algorithms later..



But he is enjoying the “computational” assignments of his math courses



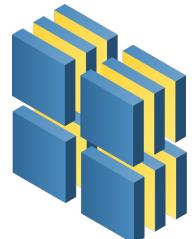
2021: he stumbles upon
NumFOCUS and PyBaMM



He works on
Mathematical Modeling
of Batteries under
Google Summer of
Code



Google Summer of Code



liionpack

He is hooked; soon
becomes a maintainer,
and later a steering
council member +
co-author (liionpack)



2022: Scikit-HEP, FluxML, and early Scientific Python



2023: Agda, Idris, and their standard libraries in Canada



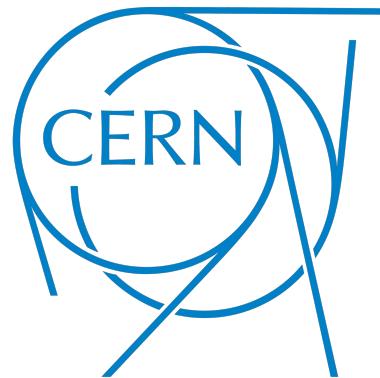
VECTOR

Starts maintaining even more open-source scientific software

Awkward Array



Gets to be an RSE at CERN on contract to continue his 2022 work



2024: at this point he is very much into Research Software Engineering

JOSS papers (software), conference papers (software), and maintains OSS - very RSE profile

He is graduating this year!



No full-time experience, but a LOT of experience

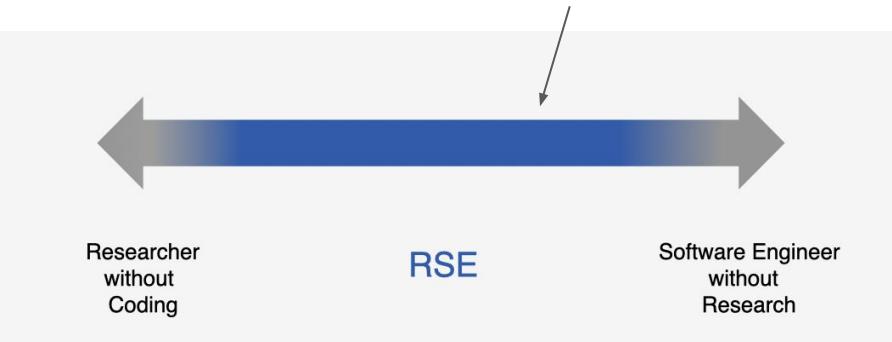
Already maintains a lot of software, and now some money would be nice

2024 (parallel): he is now ready for a job

Mostly self taught, and can even teach!

Computational math, HPC, Python, applied ML, and RSE

Is roughly here





People don't look at spare time open-source work / internships as concrete experiences

Software Engineering in academia means sometimes you get the best of the both worlds and sometimes the worst

People want him to have a master's/PhD or equivalent work experience

Will not work as an SDE/SWE for a company





Not a lot of them in the market

Applies to one and gets in immediately

HPC, Python, Math, but also teaching HPC and Research Computing to master's and PhD students!

Changes strategy, aims for junior RSE roles now



Late 2024: joins UCL's Advanced Research Computing Centre as an Assistant RSE





Is already working at the level of a standard RSE

Is now also doing some community work for the open-science movement at UCL

Is promoted to a standard RSE role in less than a year!

2025: loves his work

Picks up some DevOps and HPC cluster management too





EPFL

he is going back to school -
master's at EPFL

Late 2025: resigns from his job

Because he wants to be here



Key takeaways

For people who want to be an RSE:

- Having a graduate degree exponentially increase your chances of landing a job (academia values degrees)
- You will have to really prove yourself if you don't have a graduate degree
- Industry does not care much (really great places to work at - Quansight, Quantstack, 2i2c, ...)
- The job market in general is really bad right now
- Learning programming does not require a degree
- Open-source contributions will make your profile shine!
- The ability to do independent research does require going through grad school

Key takeaways

For people hiring RSEs

- Ask yourself where do you see a person working on this plot



- If it is more towards the right (or if you are hiring a “generalist”), don’t look for graduate degrees (if it is far right, don’t look for any degrees)
- If it is more towards left, then yes, you need someone with a graduate degree in the relevant field
- Be transparent with the candidates

Thank you



Wants to stay around the RSE space in the near future

But now wants to try working in industry too (research roles)

Navigating through RSE as an undergrad

Now?: is enjoying his time at EPFL

Getting back to studies was harder than he expected; less OSS time

Still involved with CERN, but now with their ML4EP group

logitech®

Will join Logitech as an applied AI intern next year for 6 months