

Python Profiling and Optimisation & the RPC SIG

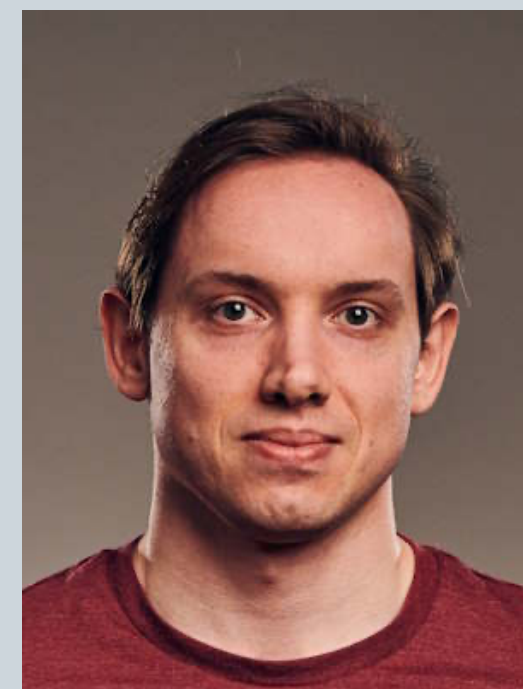


Jost Migenda
they/them

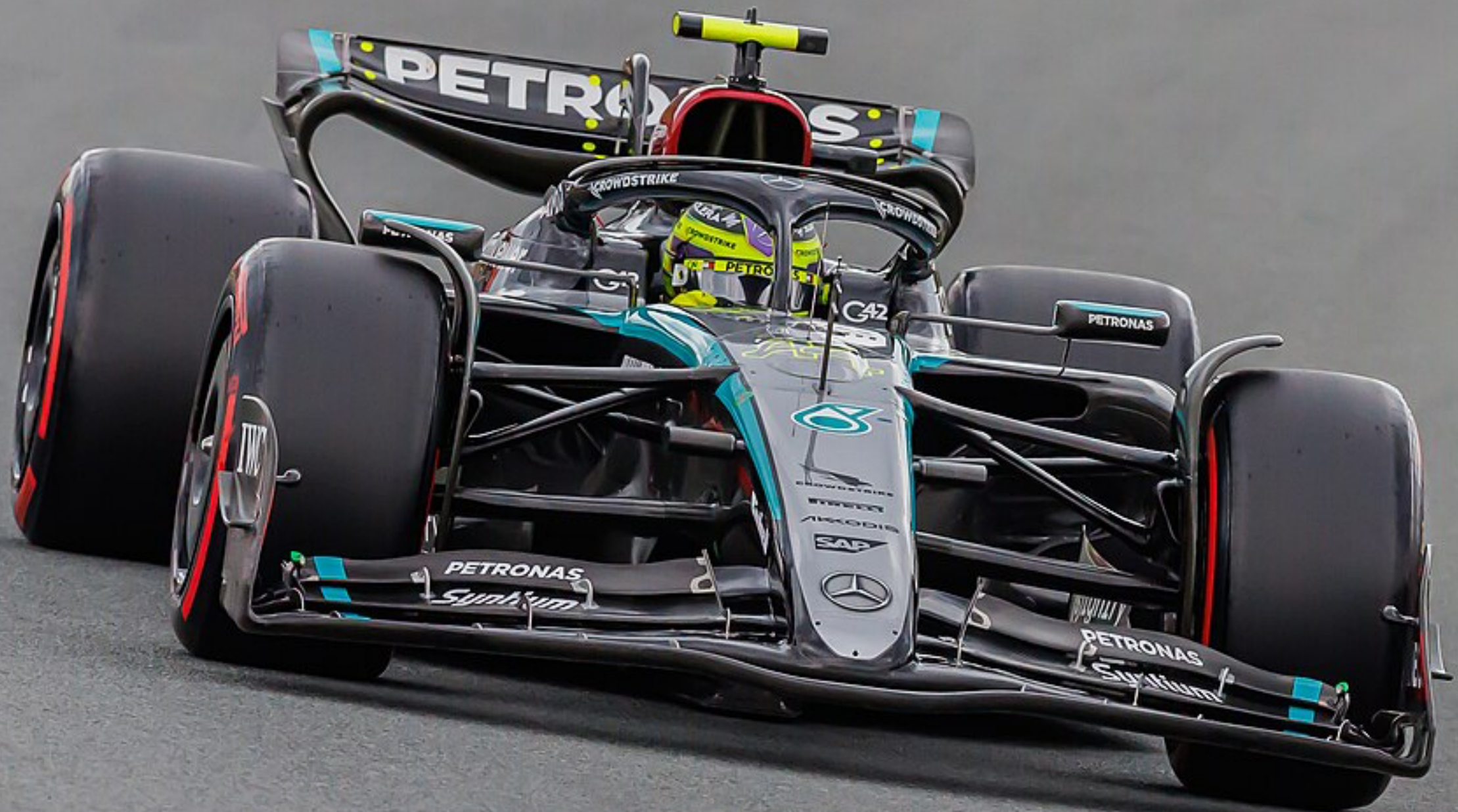
King's College London
jost.migenda@kcl.ac.uk

Robert Chisholm

University of Sheffield
robert.chisholm@sheffield.ac.uk



HPC is Great, But ...



... RPC Matters to Way More People



Flying Pigeon bicycle, the world's most popular vehicle. Photo by 齐健, CC BY 2.0.

Reasonable Performance Computing SIG

- ♦ Founded in September 2024
- ♦ Initiated & chaired by Robert Chisholm
- ♦ <https://sig-rpc.github.io/>

Supported by:



Two Steps to Reasonable Performance



Profiling



& Optimization

Two Steps to Reasonable Performance



Profiling & Optimization

→ started to develop a course for Python users

Python Profiling & Optimization



- ♦ Function-level profiling with cProfile
- ♦ Line-level profiling with line_profiler



- ♦ Language features & the standard library
- ♦ Basics of data structures & algorithms
- ♦ Using NumPy, Pandas *et al.*
- ♦ Updating Python, latency, parallelisation & more

Python Profiling & Optimization

- ♦ 1-day course in the Carpentries Incubator
- ♦ <https://github.com/RSE-Sheffield/pando-python>
- ♦ Successful pilot workshops at UoS, KCL & elsewhere
- ♦ Some known areas for improvement, but ready to be tested at more institutions
 - ♦ Volunteer to run it yourself!
 - ♦ Invite us to your institution!

*Plan to run course
as part of STEP-UP
later this year*

Summary & How to Help



- ♦ Join SIG-RPC (email or UKRSE Slack)
- ♦ Run 🔍 & 🛠️ course and give feedback
- ♦ Join SIG-RPC workshop at RSECon to build performance patterns database for other languages
- ♦ Get in touch: jost.migenda@kcl.ac.uk or robert.chisholm@sheffield.ac.uk



SIG-RPC homepage