



# Frederick Pringle

**Nationality:** British  **Email address:** [contact@fpringle.com](mailto:contact@fpringle.com)

## ABOUT ME

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I am a passionate, hard-working, self-taught programmer and technology enthusiast, with a Master's degree in Mathematical and Theoretical Physics from the University of Oxford. I try to bring focus, dedication and intelligence to everything I do. I am a freelance software engineer specialising in backend development. I am skilled in several programming languages such as Python, C/C++, Haskell and Javascript; and have some experience in Ruby, TypeScript, and Rust. I believe I can be a valuable addition to any development or research team, and look forward to any opportunity to expand my skillset.

## WORK EXPERIENCE

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### Software consultant / backend engineer

**Self-employed** [ 24/04/2023 – Current ]

**City:** Munich

**Country:** Germany

**Business or sector:** Professional, scientific and technical activities

- I provide software consulting services, primarily in the field of backend development.
- My principal client:
  - is [CentralApp](#), a company based in Brussels which provides a smart website builder to small business in Belgium, France, the Netherlands, Italy, Spain, Sweden, and the UK.
  - I help the in-house backend engineers to maintain and develop the backend infrastructure used to service over 4,000 client websites, most of which is written in the language Haskell.

### Scientific Researcher

**Technical University of Munich** [ 05/04/2021 – 21/04/2023 ]

**Address:** School of Computation, Information and Technology Boltzmannstraße 3, 85748 Garching bei München (Germany)

**City:** Munich

**Country:** Germany

**Website:** <https://www.ce.cit.tum.de/en/air/home/>

**Name of unit or department:** Chair of Robotics, Artificial Intelligence and Real-time Systems - **Business or sector:** Professional, scientific and technical activities

- I worked on the CiLoCharging project, using agent-based simulation to study the effects of delivery vehicle electrification in logistic fleets.
- I worked with other researchers at TUM as well as partners in the automotive and logistic industries e.g. DHLExpress and Siemens.
- My responsibilities included C++ development and extension of CityMoS, a modular agent-based microscopic mobility simulator developed by TUMCREATE in Singapore. This allowed me to greatly increase my proficiency both with the C++ standard libraries as well as high-performance computing and multi-threaded processing using OpenMP. I also lead the integration of gRPC into the simulator in order to be able to couple the simulation with an external algorithm engine in real time.
- I also conducted research in the area of Digital Privacy, including game-theoretic approaches and the study of user privacy in Mobile Crowdsensing Networks.

### System Controller

**Telespazio VEGA GmbH** [ 13/10/2019 – 30/07/2020 ]

City: Gilching

Country: Germany

- I worked as a Systems Controller for the client (DLR) at the German Space Operations Centre, maintaining and monitoring the Columbus (ISS) Control Centre ground systems.
- I supported scheduled simulations and test operations with both European and international partners.
- I worked closely with the subsystem engineers to ensure that any service changes were correctly implemented and documented.
- I updated and validated Ground Control Team procedures and training materials.
- I gained an in-depth understanding of space operations and overall subsystem design.

## **EDUCATION AND TRAINING**

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### **Master of Mathematical and Theoretical Physics**

*University of Oxford* [ 09/2018 – 05/2019 ]

Address: Oxford (United Kingdom)

Final grade: Merit – Level in EQF: EQF level 7

- Galactic and planetary dynamics
- Kinetic Theory
- General relativity
- Perturbation methods
- Numerical linear algebra
- Cosmology
- Advanced fluid dynamics
- Network theory
- Collisional plasma physics

### **Bachelor of Mathematics**

*University of Oxford* [ 09/2015 – 05/2018 ]

Address: Oxford (United Kingdom)

Final grade: First Class – Level in EQF: EQF level 6

- Classical mechanics
- Linear algebra
- Differential equations
- Fluid dynamics
- Metric spaces and complex analysis
- Integration
- Numerical analysis
- Probability and statistics

### **Space Studies Program**

*International Space University* [ 23/06/2019 – 22/08/2019 ]

Address: Strasbourg (France)

## **LANGUAGE SKILLS**

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Mother tongue(s): **English**

**Other language(s):**

**French**

**LISTENING A2 READING A2 WRITING A2**

**SPOKEN PRODUCTION A2 SPOKEN INTERACTION A2**

**German**

**LISTENING B1 READING B1 WRITING B1**

**SPOKEN PRODUCTION A2 SPOKEN INTERACTION A2**

## DIGITAL SKILLS

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Python / C++ / Linux / Windows / Git / Bash / Data Structures and algorithms / Microsoft Office / Haskell / Functional Programming / C / JavaScript / SQL / gRPC / protobuf / Nix / NixOS

## PUBLICATIONS

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### [Studying Logistic Fleet Electrification Using Traffic Microsimulation Software](#)

[2022]

Pringle et al. Proceedings of the Winter Simulation Conference 2022

Electric vehicles (EVs) can make a significant contribution to addressing global climate change. However the adoption of EVs for road freight transport is low, owing to challenges such as limited range, cargo capacity constraints, and charging times. This paper briefly describes a simulation-based approach to studying the feasibility of EV adoption for road freight transport. With the help of the microscopic traffic simulator CityMoS, we assess the impact of electrification from an operational as well as climate perspective.

Link: <https://informs-sim.org/wsc22papers/299.pdf>

### [APIS: Applications and Potentials of Intelligent Swarms for magnetospheric studies](#)

[2019]

in 2019 I attend the Space Studies Program at the International Space University in Strasbourg. During the final part of the program I collaborated with fellow students from around the world to research and produce a 120-page paper about Satellite Swarms, culminating in a mock proposal for a satellite swarm mission to conduct Astrophysics research. The project, sponsored by NASA Ames research centre and recently presented at the 2020 International Aeronautics Congress and, was very well received. I especially enjoyed the chance to work with people from a multitude of different countries, cultures and professions.

## CONFERENCES AND SEMINARS

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### **Global Young Scientists Summit 2022**

[ Online, 16/01/2022 – 20/01/2022 ]

From 17-21 January 2022 I was a participant in the Global Young Scientists Summit. I had the opportunity to take part in plenary lectures and smaller group discussions with a wide array of eminent scientist, including 14 Nobel Prize winners and 3 Fields Medallists.

Link: <https://www.nrf.gov.sg/gyss/home>

### **Winter Simulation Conference 2022**

[ Singapore, 11/12/2022 – 15/12/2022 ]

I travelled to Singapore to attend the Winter Simulation Conference 2022. I presented a paper that my colleagues and I wrote titled *Studying Logistic Fleet Electrification Using Traffic Microsimulation Software*.

Link: <https://meetings.informs.org/wordpress/wsc2022/>

## COMMUNICATION AND INTERPERSONAL SKILLS

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### **Communication and interpersonal skills**

- good communication skills, especially with people from a wide range of countries, gained through qualification as an English language teacher, and improved during a team project at the International Space University.
- excellent contact skills with children gained from several years working as a Mathematics tutor