👩‍💻 **Software + Data Engineering**

Varvara Efremova

📌 **Canberra, ACT**

Hi, I'm Varvara! I'm a software designer with a background in physics and a love for data. I design and build web-based software solutions that help make research data accessible and easy to use.

I prioritise designing user-focused, modular, maintainable and well-documented software systems, as well as establishing good engineering practices to ensure long term sustainability.

🛠️ Projects

Web strategy for ACCESS-NRI

2023 - Present | ACCESS-NRI

Community consultation, architecture and implementation of web services for the ACCESS climate modelling community.

opendata.fit

2016 - Present | UNSW Sydney

Design, implementation and deployment of opendata.fit: a web-based data analysis and publication platform focused on improving reproducibility in research and supporting FAIR data principles. Liaising with researchers to implement analysis algorithms across a variety of disciplines.

- Microservice-based, asynchronous backend
- Ember.js/TypeScript frontend
- Infrastructure management and CI/CD via Terraform

`Python SciPy stack | Flask | Django | Ember.js | TypeScript MongoDB | WebSockets | RabbitMQ | Docker | Terraform`

CI/CD pipeline for climate model builds

2022 - 2023 | ACCESS-NRI

Design and deployment of a CI/CD pipeline for automated build testing of Fortran-based climate models.

`Docker | Github Actions | Spack`

🎓 Education

2017 - 2018
Honours (Physics)
Australian National University
"Fabrication and characterisation of graphene/polycarbonate composite ultrafiltration membranes"

2010 - 2013
Bachelor of Science (Physics)
University of New South Wales

💻 Skills

- Web application architecture and development
- Backend architecture and development
- Technical communication
- Database design and management
- Scientific programming
- Infrastructure-as-code deployments
- Containerisation
- CI/CD
- Unit/integration testing
- Bash scripting
- Linux server administration
- Graphic design

Bindfit - online binding constant fitter

2015 - 2016 | UNSW Sydney

Design and deployment of Bindfit, a web-based binding constant fitting and archival tool for NMR and UV spectroscopy data analysis. Ability to publish complete workflow and cite via single link. Available at app.supramolcular.org/bindfit.

`Python SciPy stack | Ember.js | Django | PostgreSQL | AWS`

AtomBlend

2014 | Australian Centre for Microscopy & Microanalysis, USyd

Development of a Python-based Blender addon for 3D visualisation, publication-quality 3D rendering, and interactive analysis of atom probe tomography data.

`Python SciPy stack | Matlab | Blender`

Solar car performance simulator

2014 | Sunswift, UNSW Sydney

Development of a Python software package for modelling and real-time simulation of solar car performance ahead of Sunswift's successful FIA land speed record attempt. Responsible for setting target speed of record attempt.

`Python SciPy stack | Embedded systems`

✋ Volunteering

2021 - Present

Canberra Makerspace

Managing the operations of a community makerspace, including administration, grant writing, volunteer coordination and tool maintenance.

2015 - 2017

Historical Aircraft Restoration Society

Assistance with general ground duties and minor aircraft maintenance jobs.