👷 **Software Design + Data Engineering**

📌 **Canberra, ACT**

Varvara Efremova

I'm a software designer with a background in physics and a love for data. I love to 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.

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Docker | Github Actions | Spack
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🎓 **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.

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

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Python SciPy stack | Matlab | Blender
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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
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✋ 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.