HENRY GROVES

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Education

Newcastle University **2023–2027**
- **M.Sc. + B.Sc. (Hons) Computer Science**
- **B.Sc. dissertation:** *Quantum-Inspired Models of Emotional Memory*, mark 81 (First)

Pontefract New College **2021–2023**
- **A Levels:** Mathematics (**A***), Further Mathematics (**A**), Computer Science (**A**), Physics (**A**)
- **EPQ:** "To what extent will quantum computing replace high performance computing in computational biology?" (**A**)

Carleton High School, Pontefract **2016–2021**
- **GCSEs:** 5 × grade 9, 3 × grade 8
- **BTECs: D*2**, **D2**

Work Experience

Northern Powergrid — *Returning Summer Internship*

- ***Data Scientist (DSO)*** **June–September 2026**
  - Designed a shared development framework for a growing data science team, built on Reproducible Analytical Pipeline (RAP) principles, with standardised logging, configuration and CI/CD on Azure DevOps.
  - Migrated 2 legacy manual Power BI/Excel processes to RAP pipelines, cutting run time from several days to a few minutes.
- ***Data Scientist (DSO)*** **May–September 2025**
  - Built a graph-based simulation tool modelling high-voltage networks under normal and fault conditions, used across teams for network planning and forecasting low-carbon technology (LCT) uptake.
  - Replaced a top-down approach with bottom-up simulation from historical and real-time asset data, enabling finer-grained analysis.
  - Modelled grid evolution to 2050 under 4 future energy scenarios.
- ***Data Scientist (DSO)*** **May–September 2024**
  - Designed an end-to-end ML pipeline forecasting short-term load across ∼800 distribution substations from half-hourly meter data, with gap-filling via Akima interpolation and lag-based methods; used for network planning and procuring flexibility.
  - Clustered load profiles with DTW k-means and showed that one model per cluster generalised across its members, reducing the number of models from ∼800 to 6.
  - Designed and tuned TCN and BiTCN neural networks for each cluster, with selected exogenous features improving accuracy.
- ***Data Analyst (System Forecasting)*** **May–August 2023**
  - Built a statistical demand model for ∼4M customers on low-voltage networks using SQL and Python, informing short- and long-term business planning.
  - Prepared data for regulatory submissions under tight deadlines.

Projects

"Biggmarket" — item-swapping app promoting sustainability

Full-stack web app built with Next.js, TypeScript, tRPC and Tailwind CSS on PostgreSQL/Prisma, featuring a swipe interface, real-time messaging, Google OAuth and a user review system.

Key Skills

- Machine learning & time-series forecasting
- Statistical modelling
- Data engineering & RAP
- CI/CD & deployment
- Graph-based simulation
- Data exploration & visualisation

Programming:
- Python
- SQL
- Julia
- R
- Rust
- C/C++
- TypeScript
- Java

Libraries / Frameworks:
- numpy / pandas / scikit-learn
- PyTorch / TensorFlow
- matplotlib / seaborn
- React / Next.js

Tools:
- Git / GitHub
- GNU/Linux
- Azure DevOps
- PostgreSQL / MongoDB
- Power BI / Excel

Languages:
- English (Native)
- German (B1)

Publications

- **Groves, H.**, Jackson, L.F., Robertson, B.-A., and Hance, J.R. *Modelling Emotional Memory in Children with Tensor Networks.* Preprint, arXiv:2606.28470, 2026.