Seán Gorman

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GitHub- https://github.com/SeanGormann | Kaggle - https://www.kaggle.com/seangormann

Relevant Projects

Please see the GitHub link at the top of the page to view these (and all other) projects.

AuRA – An LLM-powered Autonomous Research Agent (3rd place in Health Universe Hackathon) utilizing custom RAG functions to access Google Scholar, implemented with Langchain using OpenAI Models.

RNAformer – Designing an Autoregressive Transformer model to predict the reactivity of RNA molecules in the Stanford RNA Ribonanza competition hosted on Kaggle, trained on the Vast.ai cloud computing platform.

AutoMate – Prospective website developed for an AI Automation Agency focused on assisting businesses' implement AI.

Experience

Machine Learning Researcher

University of Lisbon | 2022 - present

- Acting ML Engineer applying ML/DL techniques to drug discovery by predicting pharmacological metrics.
- Automating extraction, transformation, and visualization of large datasets from ChEMBL, PDB, etc.
- Researching, implementing and adapting code from academic papers with state of the art performance.
- Designing and testing Deep Learning architectures (Transformer, GNN's, etc.), modularization of code, training with cloud computing platforms (GCP, AWS, Vast AI), result analysis and model optimization.

Junior Research Specialist

University of California, SF – Gould Lab | 2019 - 2022

- Worked in a multidisciplinary lab studying the mechanisms underpinning the disease 'Gould Syndrome'.
- Spearheaded the technical work of two projects relating to kidney dysfunction and creating/ analyzing KO cell lines.
- Trained new staff research associates and junior specialists techniques such as genotyping and sequence analysis.
- Have had exposure to varied techniques such as genotyping, DNA sequence analysis, western blots, immunolabelling, cell culture, MEF harvesting, CRIPSR-Cas9 transfection and more.

Research Assistant

UCD | September 2018 – May 2019

- Worked with animal models; handling, dissection, tissue extraction, tissue preparation.
- Carried out electrophysiological experiments on rodent hippocampal tissue, recorded, and analyzed data.
- Investigated the therapeutic benefit of anti-inflammatory cannabinoids for use in treatment resistant epilepsy.

Education

MSc Bioinformatics & Computational Biology

University of Lisbon | 2022 - 2024

- Honors Thesis: "Deep Learning for Discovery of Drug Binding Activities to Orphan Targets"
- Relevant Modules: Advanced Machine Learning, Data Mining, Advanced Studies in Bioinformatics and Computational Biology, Quantitative Methods in Systems Biology.

BSc Neuroscience (Hons)

University College Dublin | 2015 – 2019

- Honors Thesis: "Modulation of Hippocampal Synaptic Transmission by Cannabidiol"
- Relevant Modules: Biomolecular-lab skills, Molecular Genetics, Data Modelling for Science, Neuropharmacology
  GPA: 3.5

Skills

- Python/SQL/JavaScript
- Machine Learning
- Algorithm Design
- PyTorch/TensorFlow/SKLearn
- Artificial Intelligence
- Life Science Domain Expertise
- CRISPR Gene Engineering
- Cell Culture

Academic Citations

Massoudi, D., Gorman, S., Kuo, Y. M., Iwawaki, T., Oakes, S. A., Papa, F. R., & Gould, D. B. (2023). Deletion of the Unfolded Protein Response Transducer IRE1α Is Detrimental to Aging Photoreceptors and to ER Stress-Mediated Retinal Degeneration. Investigative Ophthalmology & Visual Science, 64(4), 30-30.

Branyan, K., Labelle-Dumais, C., Wang, X., Hayashi, G., Lee, B., Peltz, Z., Gorman, S., & Gould, D. B. (2023). Elevated TGFβ signaling contributes to cerebral small vessel disease in mouse models of Gould syndrome. *Matrix Biology*, *115*, 48-70.

Massoudi, D., Gorman, S., Kuo, Y. M., Olivier, A., Kim, J., Wiqas, A., ... & Gould, D. B. (2021). The UPR transducer—IRE1α—is required for photoreceptor health and protection against retinal degeneration. Investigative Ophthalmology & Visual Science, 62(8), 3073-3073.

References

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