

# Gregory Lim Eu Rhen

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## EXPERIENCES

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**Creatz3D and Figure Factories** May 2025 to Sep 2025  
AI Intern Singapore

- Trained and tested graph neural networks on proprietary data to efficiently thicken meshes.
- Set up AI orchestrations using n8n to continually generate image-enriched Shopify blog posts using Google, LinkedIn, Roblox, X (Twitter), and YouTube data.
- Set up a UI for interacting with (large) language models on private local networks.

**Singapore University of Technology and Design** Jan 2025 to Apr 2025  
Teaching Assistant Singapore

- Volunteered to help teach first-year undergraduate multivariable calculus and linear algebra.

## PROJECTS

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- Introduced *replay regularized attention*, a family of dreaming-inspired learning algorithms that aims to regularise feature representations by sampling and blending feature maps from a memory buffer during training.
  - Trained and tested models on the Stanford Earthquake Dataset to accurately detect earthquake signals with and without the attention.
  - Trained and tested models on a curated waste dataset to accurately detect object recyclability with and without the attention.
- Introduced *vibe decoding*, a 1-hyperparameter generalization of greedy decoding for autoregressive language models that aims to impart efficient semantic foresight by preferring next tokens which align with the expected semantic direction of the model in embedding space.
  - Characterised the asymptotic runtime of the method.
  - Characterised the hyperparameter interval for which the decoding becomes greedy.
  - Tested instruction-tuned Qwen 2.5 0.5B, Gemma 2 2B, and Llama 3.1 8B on BoolQ, NumerSense, PG-19, and WikiText tasks using Macro F1, MRR, and PPL across various hyperparameter values.
  - Studied a possible failure mode of the method relating to embedding space isotropy.

## EDUCATION

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**Singapore University of Technology and Design** Sep 2022 to Apr 2026  
Bachelor's, Computer Science Singapore

- **Cocurriculars.** Galois Group Mathematics Club, 3DC Google Developer Student Club.

**University of British Columbia** Jul 2023 to Aug 2023  
Exchange, Linguistics and English History Canada

- **Course average.** 92.5/100.

## SKILLS

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- **Deep learning frameworks.** Pytorch, TensorFlow.
- **Natural languages.** English, Chinese, Esperanto, Malay.
- **Source code languages.** C, CSS, HTML, Javascript, Jupyter Notebook, Lua, Makefile, Python, Shell, TeX, VBA.

## PUBLICATIONS

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- Lim, Gregory. (2025). *Galois Parsimony*. Preprint. <http://philarchive.org/rec/LIMGPD>

## RECOGNITION

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- *50.040 Theory and Practice of Deep Learning Top Projects*, Singapore University of Technology and Design, 2025.
- *Singtel Information Systems and Programming First Prize*, Singtel, 2024.
- *10.015 Physical World 1D Project Award*, Singapore University of Technology and Design, 2022.
- *Malay (Special Programme) Top in Cohort*, Temasek Secondary School, 2018.
- *Math and Science Book Prize*, Temasek Secondary School, 2017.