

# 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 assist teaching 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 generalisation of greedy decoding for autoregressive language models that aims to efficiently give a model 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, and the hyperparameter interval for which the method behaves identically to greedy decoding.
  - Tested Qwen 2.5 0.5B Instruct, Gemma 2 2B Instruct, and Llama 3.1 8B Instruct on standard BoolQ, NumerSense, PG-19, and WikiText dataset tasks to observe how Macro F1, MRR, and PPL change with different hyperparameter values.
  - Studied a possible failure mode of the method related 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

## 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.
- *Top 6 Players by Fame*, Realm of the Mad God, 2022.
- *Malay (Special Programme) Top in Cohort*, Temasek Secondary School, 2018.
- *Math and Science Book Prize*, Temasek Secondary School, 2017.