

Maxwell Clarke

BACKGROUND

I'm currently a Master's student doing a thesis in machine learning — training and applying transformer models.

In my free time, I build my own programming language using Rust, go rock climbing, and dabble in game development with the Godot game engine.

I am involved in Effective Altruism, a social movement which asks how we can do the most good for the world with our resources. I want to use my career to help solve the world's most pressing problems, especially the AI Alignment problem.

PROJECTS

Master's Thesis (WIP)

Experiments with a modified transformer architecture which uses a cross-attention layer to specify which output(s) to predict at each iteration. This task is more challenging to learn than plain sequence prediction, but the resulting model can be used for "order-independent" autoregressive generative modelling, which I hypothesize is useful for tasks that don't have a natural linear order (eg. pixels in an image or joint angles in a skeleton).

Kal Language

My own programming language. It is a dynamic language with an effect system, developed in Rust, with plans to compile to WebAssembly.

ThisPPL

A custom implementation of the probabilistic programming language described in Introduction to Probabilistic Programming (van de Meent et al. 2018), including an evaluator using a Metropolis-Hastings variant.

Interpretability experiments

My semi-successful attempt at implementing the interpretability techniques from Distill's Feature Visualization.

EDUCATION

2020 - Present

Master of Science in Computer Science.
Victoria University of Wellington, Wellington, NZ.

2015 - 2018

Bachelor of Science in Computer Science.
GPA 8.15 (A/A+ average).
University of Canterbury, Christchurch, NZ.

EXPERIENCE

2019 - 2020

Software Developer, Intranet Consulting, Christchurch.

Intranet is a small consulting company which does bespoke software development. During 2019 & 2020 I worked on: A blockchain data analysis project, a crypto token integration project, workflow web apps for Ryman Healthcare, and a machine learning project for live traffic counting.

2017 - 2018

Junior Software Developer, Intranet Consulting, Christchurch.

Full-stack web development for Cryptopia, a Christchurch-based cryptocurrency exchange. As they rapidly grew, I worked on improving their web platform using JavaScript, .NET/C# and SQL Server.

2015 - 2016

Intern Software Developer, Verizon Connect, Christchurch.

Verizon Connect (formerly Telogis) is a US-based Vehicle Telematics provider. I was a full-stack web development intern for the Customer Tools team. I worked full-time during the summer, then continued part time.

SKILLS

Machine Learning

Python
Jupyter
Numpy
Tensorflow
Pytorch
Transformers

DevOps

Kubernetes
Git
Docker
Linux
Jenkins
Ansible

Full Stack Web

HTML / CSS / JS
TypeScript
C# / .NET
PostgreSQL
SQL Server
Vue.js

Game Development

Rust
Unity
C#
Godot
OpenGL

CONTACT

 maxeonyx@gmail.com

 [@maxeonyx](https://twitter.com/maxeonyx)

 github.com/maxeonyx

 linkedin.com/in/maxwell-clarke