Sachith Gunasekara

BSc (Hons) in Computer Science

✉ sachithgunasekara@outlook.com 🔗 Website in /sachithgunasekara ⌨ /sachith-gunasekara

🔍 Google Scholar R⁶ ResearchGate 🤗 Hugging Face

EDUCATION

BSc (Hons) in Computer Science   02/2019 – 07/2023
University of Kelaniya 🔗   Dalugama, Sri Lanka
- **CGPA/4**: 3.78 (First Class division)
- **Rank**: 1/125 (Top of the class)
- **Subject GPA/4:** 3.86
- **Majored** in Computer Science.
  - Selected on a merit basis with a subject GPA/4 of 3.87
- **Dean's List**: 3 out of 4 academic years
- Minored in Statistics and Pure Mathematics during the first two academic years
- **Thesis**: Engraving sentence level positional data into N-gram profiles for document classification

Diploma in Software Engineering   10/2017 – 04/2018
ESOFT Metro Campus 🔗   Matale, Sri Lanka

PUBLICATIONS

Capturing sentence level positional data into N-gram profiles for document classification 🔗   13/10/2023
Abstract | Software Intensive Systems | ICAPS 2023
- **Abstract:** https://conf.kln.ac.lk/icaps/images/2023/files/proceedings/icaps-2023-proceedings.pdf#page=161 🔗
- **Authors:** L M S Gunasekara, and ***H K S Premadasa*** 🔗
- **Venue:** University of Kelaniya, Dalugama, Sri Lanka
- **Year:** 2023

PRE-PRINTS

OpenBezoar: small, cost-effective and open models trained on mixes of instruction data 🔗   03/2023 – 04/2024
Surge Global, Sri Lanka
- **Paper:** https://arxiv.org/abs/2404.12195 🔗
- **Models and datasets:** https://huggingface.co/collections/SurgeGlobal/open-bezoar-6620a24923e12127e9e2b9cc 🔗
- **Code:** https://bitbucket.org/paladinanalytics/workspace/projects/OP 🔗
- **Authors:** Sachith Gunasekara, Chandeepa Dissanayake, Lahiru Lowe, **Yasiru Ratnayake**
- **Main findings:**
  - A mix of synthetic instruction data from a large open LLM (Falcon 40B) can economically (with QLoRA) yield competitive small models from OpenLLaMa-3B-v2: here released as the OpenBezoar family
  - The OpenBezoar SFT model outperforms base on 8/10 benchmarks, including: TruthfulQA (+14.18%), OpenBookQA (+8.84%), and MMLU (+4.29%)
  - DPO further improves on the SFT model on 8/10 benchmarks (though we observe significant regress on MMLU (-6.04%))
  - MT-Bench shows significant improvements (see radar plot)
  - Commercial LLMs with restrictive terms for use were used only for filtering synthetic data and LLM-as-a-judge evaluation
  - As an aside, we establish Claude 2.1 is a capable judge on MT-Bench

RESEARCH

Do LLMs reason better in structured (JSON) or unstructured natural language approaches?
Conducting designed experiments/Writing the paper

10/2024 – present

Research project on internalising System 2 as System 1 in LLMs
Reading/Designing experiments

08/2024 – present

PROFESSIONAL EXPERIENCE

Surge Global 🔗

Associate Machine Learning Engineer

10/2023 – present
Colombo 3,
Sri Lanka

Data Science Intern

03/2023 – 10/2023
Colombo 7,
Sri Lanka

Steiner College
ICT Classroom Teacher 🔗

11/2018 – 02/2019
Battaramulla,
Sri Lanka

HONORS & AWARDS

Gold medal for best performance in Computer Science
Faculty of Science, University of Kelaniya
- Awarded for the best performance in Computer Science in the batch of 2017/2018 during the 142nd General Convocation.

27/03/2024

Best Presenter at the 4th International Conference on Applied and Pure Sciences (ICAPS 2023) - Kelaniya
Oral presentation of Abstract - Software Intensive Systems Track

13/10/2023

Second Prize at the IEEE SA P2834 Student Challenge 2022, Valencia, Spain 🔗
IEEE SA P2834 Standard for Secure and Trusted Learning Systems · Nov 2022

15/11/2022

Dean's List - Academic Year 2020/2021 - University of Kelaniya
Professor Sudath R D Kalingamudali - Dean / Faculty of Science

29/01/2024

Dean's List - Academic Year 2019/2020 - University of Kelaniya
Professor Sudath R D Kalingamudali - Dean / Faculty of Science

02/02/2024

Dean's List - Academic Year 2017/2018 - University of Kelaniya 🔗
Professor Sudath R D Kalingamudali - Dean / Faculty of Science

19/02/2021

AFFILIATIONS

IEEE P2834 - Standard for Secure and Trusted Learning Systems Working Group (WG) Member 🔗
Pending Member

present

TALKS

Implementing AI Agents | Workshop | AI-Driven Sri Lanka 🔗

08/2024
Colombo, Sri Lanka

A session conducted in request to AI-Driven Sri Lanka about AI agents and implementing them with modern LLM frameworks.

AI-Driven Sri Lanka is an initiative by IEEE Young Professionals Sri Lanka formed in 2020 that strives to bridge the gap between undergraduates and graduates of the AI Industry.

- **YouTube:** https://youtu.be/4oJvr5uVTTg?t=256 🔗
- **Delivery:** Online via Zoom
- **Audience:** University undergraduates

BLOGS

nanoJAXGPT: A pedagogical introduction to JAX/Equinox 🔗   10/2024
A comprehensive introduction to JAX/Equinox by rewriting the famous nanoGPT repository.
- Blog: *https://huggingface.co/blog/sachithgunasekara/nanojaxgpt* 🔗
- Repo: *https://github.com/surgeglobal/nanoJAXGPT* 🔗

VOLUNTEERING

Judge at Sri Lanka Artificial Intelligence Competition (SLAIC) 2024 🔗   10/2024
IEEE Young Professionals Sri Lanka Section   Colombo, Sri Lanka

Mentor for an AI Bootcamp final competition   12/2023
IEEE Young Professionals - Sri Lanka   Colombo, Sri Lanka

International Vipassana Meditation Center 🔗   11/2017 – 08/2018
Secretary and IT Assistant to Chief Incumbent Thero, Ven. Udadumbara Kashyapa Thero of   Colombo 7, Sri Lanka
International Vipassana Meditation Center