Roger Jeasy Bavibidila

Küsnacht, Zurich, Switzerland.

roger@ifi.uzh.ch | https://www.ifi.uzh.ch/en/aiml/people/bavibidila.html | bavibidila | roger-jeasy-bavibidila-757270197

Education

University of Zurich *Zurich*
PhD in Computer Science *Sept. 2021 - July. 2025*
- **Supervisor:** Prof. Dr. Manuel Günther

Stellenbosch University *Cape Town*
MSc in Mathematical Sciences *Aug. 2019 - Jun. 2020*
- **Supervisor:** Prof Jonathan Shock

Experience

Earkick Mental Health AI *Zurich, Switzerland*
Machine Learning Engineer Intern (Supervisor: Gagan Narula) *Jan. 2023 - March. 2023*
- **Data curation and management:** Played a key role in the curation of training datasets, ensuring high-quality data for model training and analysis.
- **Advanced feature engineering and preprocessing:** Implemented sophisticated feature engineering and preprocessing techniques.
- **Model development for emotion recognition:** Spearheaded the training of video-based emotion recognition models, utilizing an open-source research dataset.
- **Multimodal data integration:** Successfully integrated audio data streams with image data to enrich the model's input, allowing for more robust and comprehensive analysis in emotion recognition tasks.

University of Pretoria *Pretoria, SA*
Research Assistant (Supervisor: Prof. Vukosi Marivate) *Jan. 2021 - Aug. 2021*
- **Development of an automated pipeline for breeders:** Spearheaded the creation of an innovative pipeline for the Forest Molecular Genetics Program Research Group. This tool enables the generation of synthetic breeding populations at no cost using AlphaSimR and QMSim simulation software.
- **Efficient data processing:** Automated the processing of simulated datasets using Python and R, significantly reducing the analysis time to under 10 minutes for large data sets.
- **Advanced genetic analysis tools:** Enhanced the pipeline to allow breeders to examine the impact of genetic parameters (like the number of markers, heritability, training population size) on genomic selection accuracy. Incorporated features for generating comprehensive 2D and 3D visualizations of these analyses.
- **Deep learning and machine learning applications:** Conducted training and evaluation of various deep learning network architectures and machine learning algorithms for genomic selection. This approach focused on predicting Genomic Estimated Breeding Values (GEBVs) in plant breeding, demonstrating superior performance compared to traditional statistical methods in genomic selection.

Projects

GPTuessr: Multiplayer Online Game. Link game
Web Application Developer – Project Github Links: **Backend** and **Frontend** *Feb. 2024 - May 2024*
- Developed "GPTuessr", an innovative multiplayer web application that combines AI-driven art creation and guessing game dynamics
- Built mock up design and component diagrams for the game
- Engineered game features using DALL-E for real-time AI image generation based on user inputs
- Integrated ChatGPT for dynamic assessment of player inputs and guesses, improving the accuracy and responsiveness of game mechanics.
- Designed and conducted comprehensive service and controller unit and integration tests to ensure functional integrity and reliability across different modules.

Random Network Distillation (RND) and Curiosity in Reinforcement Learning

- Reviewed curiosity-based policies for sparse reward settings in reinforcement learning and then implemented a RND.
- To ensure the effectiveness of RND, it was combined with the Deep Q-Network learning algorithm (DQN+RND) to solve the Mountain Car Problem using GYM, a reinforcement learning python framework. The new architecture reduced the number of episodes from 21 to 15 in solving the problem.

Skills

Programming languages: *Python, R, Java, JavaScript*

Frameworks and others: *PyTorch, TensorFlow, Keras, React, Java Spring Boot, Scikit-learn, Google Cloud Platform, AWS(EC2, S3), Firebase, REST APIs, Git, OpenCV, dLib, NumPy, Pandas, Matplotlib, Hugging Face, OpenAI*

Spoken languages: *English and French*

Supervision of students

Parallel Implementation of Gabor Wavelet Processing in PyTorch

- I had the opportunity to co-supervise an engaging Master's project, undertaken by two talented students, Huiran Duan and Zelin Wu.
- **Technical expertise and guidance:** Provided specialized knowledge in PyTorch, parallel computing, and Gabor Wavelet theory.
- **Code development and review:** Assisting in the development process of the project, including writing, reviewing, and optimizing code.
- **Research support:** Guiding the students through the research process, including literature review on similar implementations, understanding the mathematical foundations of Gabor Wavelets.
- **Regular monitoring and feedback:** Holding regular meetings to monitor the progress of the project, providing constructive feedback, and keeping the project aligned with its goals.

Teaching activities

Teaching Assistant (TA) in the Deep Learning Lecture *University of Zurich*
Spring 2023

- Conducted tutorial sessions
- Graded assignments and the final exam
- Provided constructive feedback on students' assignments
- Prepared assignment materials and new laboratory exercises.

Awards

Swiss Government Excellence Scholarship Holder (September 2021 - August 2024)

- Awarded the prestigious scholarship covering the full tenure of my Ph.D. studies until August 2024.
- Conducting research with the Artificial Intelligence and Machine Learning Research Group at the University of Zurich.

Mastercard Foundation Scholar (January 2021 - August 2021)

- Selected for this competitive scholarship for my role as a Research Assistant.
- Part of the Data Science for Social Impact Research Group at the University of Pretoria.
- Focused on applying data science techniques for Genomic Selection.

References

Prof. Dr. Manuel Günther

- **Position:** Head of the Artificial Intelligence and Machine Learning Research Group, Department of Informatics, University of Zurich
- **Email:** guenther@ifi.uzh.ch