JUSTIN DE WITT

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OBJECTIVE

Hard-working and passionate graduate software engineer with specific expertise in Machine Learning, Nature Inspired Meta-heuristics, and Computer Vision.

Seeking a full-time position at Toyota and the opportunity to dedicate my skills.

Review my work at: www.justindewitt.info/#/papers.

EDUCATION

Bsc Hons Computer Science (Cum Laude), University of Stellenbosch 2021-2022
Relevant Coursework: Artificial Intelligence 791, Machine Learning 741, Computer Vision 792
Advanced Algorithms 712, Data Science 746, Digital Image Processing 793.

Bcom Mathematical Sciences, Focal Area Data Science, University of Stellenbosch 2018 - 2021
Major in Computer Science

Major in Operations Research

SKILLS

Technical Skills	Data Analysis, Technical Writing, Machine Learning, Computer Vision
Soft Skills	Teaching, Communication, Attention To Detail, Teamwork / Cooperation
Core Programming Languages	Java, C, Python, Javascript
Frameworks & Tools	ReactJS, JavaFX, Jupyter, Latex, Git
Libraries	Pandas, SKlearn, NumPy, PIL, OpenCV, PyTorch, ScraPy, MatplotLib

EXPERIENCE

Freelance Developer Dec 2020 - Dec 2021
Implement an application for the department of AgriScience at Stellenbosch. *Stellenbosch, South Africa*

- Completely digitize an existing research and development pipeline.
- Work alongside industry experts in a field where I had no previous experience.
- Maintain a thriving client-developer relationship.
- Java, JavaFX, FXML, CSS, Custom PDF, Custom XLSX.

University Assistant Project Coordinator Feb 2022 - Jun 2022
Co-Manage an undergraduate project for a class of more than 650 students *Stellenbosch, South Africa*

- Refine my project planning, communication, and project organization skills.
- Learn to adapt leadership methods based on student feedback.
- Maintain a coherent project specification that is both complete and clear.

University Teaching Assistant Jun 2022 - Nov 2022
Guide undergraduate students in: *Stellenbosch, South Africa*

- Developing a compiler for a moderately complex custom programming language - ALAN.
- Implement popular data-structures / algorithms in x86 32-bit assembly.
- Invigilate the student's final exams.

PROJECTS

Tea Scorecard Application. Built a desktop application that digitizes the research and development pipeline regarding the tea products manufactured on behalf of the Faculty of Agriscience at the University of Stellenbosch. The application back-end is implemented in Java, and the interface in JavaFX. After completion the application was deployed and installed on the University Computers within the faculty. It continues to be used by the faculty until present.

Neural Network Library In this project I implemented a Neural Network library in Java. The library contains a visualisation tool where the decision boundaries are illustrated throughout the training procedure. The library implements three training optimizers: Traditional stochastic gradient decent, Particle Swarm Optimization, and Quantum Particle Swarm Optimization.

Narrative Action Research Tool. This webapp implements the Narrative Action Research (NAR) methodology outlined in Dr. John Van Breda's 2022 publication. The primary stakeholder in support of this project was Dr. Van Breda. The MERN technology stack was used to construct the tool, from Feb 2022 to Nov 2022. A formal document outlining the application can be made available upon request.

MoonBoard Climbing Grader The MoonBoard is an standardized indoor rock climbing wall. Members of the international climbing community use the MoonBoard application to create, or climb, graded routes. This project delivers a homogenous ensemble that quite accurately predicts the difficulty (grade) of MoonBoard climbing routes. Included in this project is a script used to automatically interact with the MoonBoard application to collect route images. A morphological filtering pipeline is used to extract route features from the images. This project demonstrates a robust understanding of the data-science life cycle.

Other Projects
Machine Learning: https://justindewitt.info/#/papers/2
Computer Vision: https://justindewitt.info/#/papers/3
Nature Inspired Meta-heuristics: https://justindewitt.info/#/papers/1

All code can be made available upon request.

EXTRA-CURRICULAR ACTIVITIES

- Avid rock-climber, both indoor and outdoors.
- Immersive explorer, visiting more than 20 countries, pursued international education.
- Multilingual.