A L E X Y   X E N A   H A C K M A N N

SOFTWARE ENGINEER (FULL-STACK) WITH AI /ML EXPERTISE

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A highly motivated and enthusiastic final year bachelor's student. Results-oriented individual with 3 years of experience in building, maintaining, and deploying AI-based software, as well as mobile and web applications. An astute individual looking to leverage her technical skills to push business solutions in a full-time role. Displays outstanding data sensitivity and a superb problem-solving capability in her work.

EDUCATION

Nanyang Technological University **Aug 2019 – May 2023**
Bachelor of Science in Mathematical and Computer Sciences
Course: Data Science and Artificial Intelligence, Final Year
- Honours (Highest Distinction)
- **Carro X AWS Hackathon**: Achieved 3rd Placing out of >80 teams.
- **Shopee Product Design Challenge**
- **NTU Colab4Good Social Enterprise Challenge**

EXPERIENCE

Full-Stack Engineer & Data Science Intern **Jan 2022 – May 2022**
Seagate Singapore International Headquarters Pte. Ltd.
- Worked in an agile environment to develop full-stack web applications with Python Django back-end involving self-tuning Machine Learning (ML) Algorithms to streamline fault detection for Failure Analysis Engineers on short deadlines.
- Designed functional and responsive FE using HTML5, CSS Bootstrap and jQuery.
- Constructed dynamic web applications with multi-threading to automatically pre-load data analysis results to reduce user wait time.
- Created re-usable and scalable components in the code which was adopted by the data science team in the United States.
- Identified weakness in current methods to improve the system classification scores to determine hard-drive failures by >10% on test datasets and reduced system run-time by >50% through superior search domain reduction techniques.
- Implemented an anomaly detection web service to detect hard drives displaying test abnormalities to increase fault detection efficiency by >20%.
- Organized and led presentations to upper management about increasing efficiency of the engineering process using ML and software development.

TOP PROJECTS

Evolving Density-Based Fuzzy Convolution Neural Network with Applications to Portfolio Management **2022**
- Developed a novel highly robust and stable evolving data-driven fuzzy CNN in Python to predict changes in the stock price up to 2 weeks in the future with $R2>0.99$.
- Used a multi-model approach to successfully reinvent and improve the Vanilla MACD Indicator by reducing its RMSE by >50% for various securities.
- Combined the Markowitz Efficient Frontier with my algorithm to develop a portfolio rebalancing technique that generated a profit of >\$1M over the test period of 2 years.
- Architecture: hybrid Neuro-Fuzzy System (NFS) with an embedded deep fuzzy association model and an improved learning mechanism using an online clustering algorithm DBSTREAM for evolving vocabulary construction.
- Working with my Supervisor to publish two papers on the architecture and application of the model in a journal.
- Achieved an A+ grade for my superb work.

Singapore Economic Tracker Application **2022**
- Developed a multi-page web application to track and predict trends in prices of goods & services in Singapore using Plotly Dash in Python, as well as correlate historical price changes to events in the news.
- A three-part data pipeline was built to scrape, preprocess and then analysis the textual data. Various algorithms were applied, such as VADER for sentiment analysis, and anomaly detection and changepoint detection analysis for the time series data.
- Led the UI/UX design and implementation of the webpage using Bootstrap (HTML5 & CSS).
- Designed system architecture using SOLID principles to improve system scalability and maintainability.
- Applauded for my superb design and was awarded an A grade for the project.

UniverCities – a Mobile Platform for Students **2021**
- In a team of four – designed and developed an interactive mobile application using Dart and Flutter to streamline user experience when searching for and choosing their future university course.
- Designed UI based on Ben Schneiderman's eight golden rules.
- Implemented a layered architecture with a DAO layer for abstraction, extensibility, and scalability.
- App was linked with Google's Firebase to manage user data.

TECHICAL SKILLS

- Python (*main development language*)
- JavaScript (*in process of receiving certification*)
- Web Development (*Django, HTML5, JS, CSS*)
- Database (*Postgres & SQL Server*)
- Deployment using Heroku
- App Development (*Flutter*)
- UX and UI Design
- Experience with Java and C
- Machine Learning & AI (*Neuro-Fuzzy Systems, Neural Networks, Explainable AI*)

SOFT SKILLS

- **Strategy & Planning**: Designed key systems using my knowledge in ML and data science to build software systems.
- **Problem & Data Sensitivity:** Consistently achieved A/ A+ grades in individual projects through insightful analysis.
- **Excellent Adaptability & a Quick Learner:** Learnt new tech stacks on-the-job and applied learnings to build fully functional systems in <2 months.
- **Problem Solver:** Won 3rd place out of >80 teams in a hackathon by analyzing the problem statement and implementing exceptional ML techniques.

AWARDS & CERTIFICATIONS

- **Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning**
  DeepLearning.AI
- **SQL for Data Science**
  University of California, Davis
- **Predictive Modeling, Model Fitting, and Regression Analysis**
  University of California, Irvine
- **Natural Language Processing and Capstone Assignment**
  University of California, Irvine
- **Innovation: From Creativity to Entrepreneurship**
  University of Illinois at Urbana-Champaign
- **Deep Learning with PyTorch: Neural Style Transfer**
  Coursera Project Network
- **CCA Award for Individual & Team Sporting Excellence**
  Nanyang Junior College
- **SMC Scholarship for Academic Excellence**
  St Margaret's Secondary School
- **SMC Scholarship for Top-in-Cohort**
  St Margaret's Secondary School

LEADERSHIP & VOLUNTEER EXPERIENCE

Committee Member   **2020-2021**
Peer Helping Programme

- Underwent training and earned certification in foundational knowledge of common mental health issues, and to be able to identify and reach out to students at risk.

Volunteer   **2016**
Dyslexia Association Singapore

- Volunteered at DAS to engage the children through art and reading.