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EDUCATION

Master Of Science — ***Clarkson University*** **Jan 2024 – May 2025**
Major - *Data Science* ***Overall GPA: 3.95/4.00***
Bachelor of Science — ***Parul University*** **June 2019 – May 2024**
Major - *Computer Science* ***Overall GPA: 8.08/10.0***

ACADEMIC & SELF PROJECTS

Text Mining & AI Agents Driven Optimization Of Ceria Slurry for CMP | Research Associate **Sept 2024 – Present**

- Conducting research on **Ceria synthesis**, leveraging AI and ML to extract synthesis parameters from 300+ scientific research papers. Developed a program to extract key experimental parameters from XML and PDF sources. Created a structured JSON dataset for accurate model training and fine-tuned custom LLMs (OpenAI, Mistral, Gemini) for automated knowledge extraction.
- Developed a SciBERT model to extract and analyze key experimental parameters, enhancing the accuracy of knowledge extraction in Ceria synthesis. Applied deep reinforcement learning to optimize **CMP slurry formulations**, significantly improving selectivity, defect reduction, and removal rates. drawn and visualized insights and trends.

Atomic-Level Insights & Machine Learning for Corrosion Inhibitors in Copper CMP | Sponsored by **IBM** **Jan 2025 – July 2025**

- Designed and implemented data-processing pipeline, incorporating canonical SMILES generation, DFT-derived quantum descriptors, virtual sample augmentation, and RDKit structural molecular fingerprint extraction for feature engineering.
- Developed and evaluated 6 machine learning models, achieving highest validation R^2 of 0.80 with XGBoost. Conducted metric-based model selection and SHAP analysis to interpret key features driving corrosion inhibition efficiency.

Student Chatbot | Team Leader - NATURAL LANGUAGE PROCESSING & MULTINOMIAL NAIVE BAYES ALGO **Oct 2022 – Apr 2023**

- Developed this chatbot to serve as a personalized tutor, identifying areas of weakness in students' understanding and guiding them toward mastery. This bot identifies the student's interests, recommends various books, websites, and videos, conducts exams on the topic, provides analysis, and delivers feedback. This chatbot comprises seven modules, making it a standout bot.

SKILLS

Languages & Tools	Python, Rstudio, Tableau, PowerBI, C, C++, ReactJS, JavaScript, SQL, Java, Kotlin, HTML, CSS, TypeScript
Technologies	Transformers, HuggingFace, LangFlow, Cryptography, OpenCV, Figma, Scikit-Learn, AWS, Git & Github
Quantitative Research	CMP, Text Mining, Statistical Analysis, NLP, RAG, LLMs, BERT, Fine-Tuning, ML, DL, LangChain, ETL
Technical & Soft Skills	Windows, Linux, Excel for Data Analysis, Problem-Solving, Programming, Communication, Research

TECHINICAL EXPERIENCE

Clarkson University / **Sept 2024 — Present**
Graduate Research Assistant ***[Sept 2024 – May 2025]*** *&* *Visiting Research Associate* ***[May 2025 - Present]***— ***Seo Research Group, CAMP***

- Developed an AI-driven text mining pipeline to analyze hundreds of CMP studies and extract ceria slurry formulation insights.
- Applied ML and DFT-derived molecular descriptors to predict and interpret organic **corrosion inhibitor performance** in **Cu CMP**.
- Integrated text-mined synthesis data with life cycle assessment to evaluate **environmental impacts** (carbon footprint, water usage, ecotoxicity), enabling data-driven comparison of process pathways and guide **sustainable ceria nanoparticle production**.

TATHASTU / **June 2022 — July 2022**
Full Stack, M.E.R.N SCHOLAR INTERN

- During my internship, I utilized the M.E.R.N stack for frontend, backend, and database. Crafting engaging UIs with React.js, robust backend services with Node.js, and ensuring data integrity with MongoDB and Mongoose.js. Additionally, I integrated e-commerce functionalities, conducted testing, and orchestrated cloud deployment with proactive monitoring.
- I contributed to the creation of an innovative E-commerce platform specializing in clothing and fashion accessories.

LETS GROW MORE / **August 2022 — September 2022**
ANDROID DEVELOPMENT

- During my internship, I developed a Budget Tracker app, honing my proficiency in Java and Kotlin. This project allowed me to implement features for income, expenses, and savings tracking, empowering users to take control of their financial health. Through hands-on Android development work, enhancing my problem-solving skills and overall app development expertise.

AWARDS & ACHIEVEMENTS

Presented **3** AI&ML-driven **CMP semiconductor** research projects each at **Lewis University's CMPUG**, the **CAMP Technical Meeting** in **Geneva**, and the **27th CAMP CMP Symposium** in **Saratoga**, highlighting methodology, findings, and **industry relevance**.

wrote **2** research papers:one on a **student chatbot** Undergrad capstone project and another on a **talented assistance** self project.

Solved 50+ problems on **Leetcode** in Python & c++, and Worked with **Chegg** as a math expert for **Problem Sloving**.

Certified by **LinkedIn** for completing **JavaScript** course. Passed **LinkedIn Skill Assessment** in Python, Excel, and MSOffice.