Neil Rohan Dcruze

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EDUCATION

Middlebury College, Middlebury, VT, USA
Bachelor of Arts in Computer Science (Minor: Mathematics)
GPA: 3.89
Honors: UWC Davis Scholar, College Scholar's List
Coursework: Operating Systems, Systems Programming, Machine Learning, Natural Language Processing, Probability, Quantum Computing, Algorithms & Complexity, Computer Architecture

UWC Mahindra College, Pune, Maharashtra, India
International Baccalaureate Diploma Programme
IB Score: 40
Activities: UWC Mahindra Robotics, Fire and Rescue Service, Debating Society (*President*)

WORK EXPERIENCE

Insolvency Law Academy (Machine Learning Research)   June 2024 - Present
- Designing a model to predict financial distress and identify causes, based on companies' financial statements

Middlebury Consulting Group (Data Scientist)   September 2023 - May 2024
- Worked with World Data Lab to develop a consumer spending dataset for the US and EU, projecting demographic-specific spending until 2030
- Provided consultancy to early-stage organizations to make data-driven business decisions

Indian Institute of Technology (Research Advisor: Dr. Asif Ekbal, IIT)   June 2023 - August 2023
- Co-authored a selected IJCAI 2024 paper on the novel *GENETT* (*GE*nder *NE*utralizing *T*ext *T*ransformation) framework for converting gender-biased sentences to gender-neutral ones while preserving the original meaning
- Improved content preservation (BLEU) and fluency (PPL) using auto-encoders, vector quantization, and Neutrality-Infused Stylization (NIS) module
- Contributed to the creation of the *GENRE* dataset, the first dataset for *GE*nder *N*eutralized *RE*visions

Gram Vaani (Software Engineer)   July 2022 - August 2022
- Developed a Django-based WhatsApp chatbot (*Kahi Ankahi Baatein*) for Sexual Health and Awareness, offering rural Indian users localized resources and answers to their queries
- Enhanced chatbot quality by identifying gaps in response and adding additional handling to improve accuracy
- Project selected for the WhatsApp Incubator Program (Cohort of 2022)

PUBLICATIONS

[1] *"From Pink and Blue to a Rainbow Hue! Defying Gender Bias through Gender Neutralizing Text Transformations"*
Gopendra Singh, Soumitra Ghosh, **Neil Dcruze**, Asif Ekbal. **IJCAI AI for Social Good Track (2024)**.

RELEVANT PROJECTS

Unix Shell Implementation [GitHub]   December 2023
- Developed a Unix-like shell in C with support for I/O redirection and multiple piping operations
- Used system calls like *fork*, *execvp*, *dup2*, and *pipe* for process creation and inter-process communication

Custom Memory Allocator [GitHub]   October 2023
- Wrote a custom *malloc* implementation in C, wrapping the *sbrk* system call to handle dynamic memory allocation
- Reduced system-call overhead and also implemented: *free*, *calloc*, and *realloc* to optimize memory management

News Article Classification with BERT [GitHub]   June 2024
- Created a BERT-based model using PyTorch for multi-class classification of BBC news articles into 5 categories
- Fine-tuned BERT with an added linear layer to leverage contextual word embeddings for accurate predictions

UFS2 File System Explorer [GitHub]   April 2024
- Explored UFS2 by writing a C program to read raw disk images and list all files and folders hierarchically
- Implemented traversal of the *superblock*, *inodes*, and *direct* structures to understand file system organization

Mental Health Analysis [GitHub]   May 2023
- Coded a primal SVM from scratch for sentiment analysis to classify tweets for mental health insights
- Created a term-document matrix and achieved 72% accuracy on test data with effective hyperparameter tuning

SKILLS

C · Python · PyTorch · Java · Machine Learning · Systems Programming · Natural Language Processing · Unix · Django