Neil Rohan Dcruze

(802) 349-0845 · neildcruze@gmail.com · LinkedIn · Portfolio

EDUCATION

Middlebury College — **Middlebury, VT**

Bachelor of Arts in Computer Science and Math Minor (GPA: 3.92/4.0) — **Sep 2021 - May 2025**

- Relevant Coursework: Software Development, Operating Systems, Machine Learning, Computer Networks, Natural Language Processing, Systems Security, Data Structures & Algorithms
- Honors: Summa Cum Laude, Computer Science Honors, Shelby Davis Scholar

SKILLS

- Languages: JavaScript, C, Python, TypeScript, Java, HTML/CSS, SQL, PHP, R, Shell script
- Tools & Frameworks: React.js, Next.js, Node.js, Django, PyTorch, Git, Docker, Linux/Unix, scikit-learn

WORK EXPERIENCE

Indian Institute of Technology — **Patna, India**

Machine Learning Researcher (Advisor: Dr. Asif Ekbal, IIT) — **Jun 2023 - Aug 2023**

- Built GENETT, a Pytorch-based NLP framework for bias-neutral text transformation, outperforming 10 SOTA models in content preservation (54.1 BLUE) and fluency (1.24 PPL)
- Created the pioneering 5230-sample GENRE dataset and preprocessed it using pandas and spaCy
- Automated ETL with Apache Airflow, cutting manual work by 40% and improving efficiency by 15%

Gram Vaani — **New Delhi, India**

Software Engineer Intern — **Jul 2022 - Aug 2022**

- Engineered scalable APIs in Django, powering a WhatsApp chatbot used by 37,000 users in rural India
- Optimized FAQ retrieval using BERT, achieving a 70% success rate in top-3 results for query matching
- Reduced API response time by 20% through smart database indexing and async processing with Celery

Information Technology Services — **Middlebury, VT, USA**

Student Tech Lead — **Nov 2021 - May 2025**

- Led a 10-person tech team, providing IT support for 45+ campus events and client support annually
- Troubleshot Extron AV systems, resolving 3-5 weekly integration issues across campus facilities
- Streamlined ticket creation in TDX through Python scripts, reducing manual work by 50+ hours per year

PROJECT EXPERIENCE

UFS2 File System Explorer | Operating Systems — **GitHub | Apr 2024**

- Created a C tool to parse the UFS2 file system, enabling file retrieval from raw disk images up to 32GB
- Used two-level indirection to reconstruct file data from superblock, inodes, directories, and data blocks

Custom Memory Allocator | Systems Programming — **GitHub | Oct 2023**

- Wrote a memory allocator in C, implementing malloc/free, wrapping syscalls for memory management
- Reduced heap fragmentation by 40% using a linked-list metadata structure for efficient memory tracking

Mental Health Analysis | Machine Learning — **GitHub | May 2023**

- Implemented a primal SVM trained to analyze sentiments on 40,000 tweets for mental health insights
- Optimized model through hyperparameter tuning and feature engineering, achieving 72% accuracy

Unix Shell | Systems Programming — **GitHub | Dec 2023**

- Built a Unix shell in C supporting I/O redirection, piping, and concurrent execution of upto 10 processes

PUBLICATIONS

[1] G. V. Singh, S. Ghosh, **N. Dcruze**, and A. Ekbal, "From Pink and Blue to a Rainbow Hue!", in *Proceedings of the Thirty-Third International Joint Conference on Artificial Intelligence (IJCAI)*, 2024, pp. 7447-7455. https://doi.org/10.24963/ijcai.2024/824