

ARJUN BASANDRAI

ab3428@cornell.edu | +91 98140 42255 | [LinkedIn/arjun-basandrai](https://www.linkedin.com/in/arjun-basandrai) | [GitHub/ArjunBasandrai](https://github.com/ArjunBasandrai) | <http://arjunbasandrai.dev/>

EDUCATION

Cornell University, Department of Engineering, Ithaca, NY
Master of Engineering in Computer Science

Expected May 2027

Vellore Institute of Technology, Vellore, India
Bachelor of Technology in Computer Science and Engineering

May 2026
CGPA: 9.38/10

PROFESSIONAL EXPERIENCE

Micron Semiconductor Technology India
AI Applications Engineer Intern

Ahmedabad, Gujarat, India
Feb 2026 – Jul 2026

- Built and deployed an Automatic Defect Classification system for wire bonders using a ResNet-50 image classifier, reducing defect identification and reject-code assignment time from 3-5 minutes to about 30 seconds.
- Built the supporting production operator and admin dashboards, adding automated inference, role-based access, API-key management, rate limiting, model versioning, prediction logging, and model monitoring.
- Implemented a Gold Wire Monitoring System for 400 wire bonders to detect abnormal 999 gold wire consumption, possible theft, material loss, and machine-wear, reducing manual machine-level consumption analysis time from 15 minutes to 1 minute.
- Implemented Airflow ETL pipeline and SPC-based detection using control limits with hysteresis, CUSUM excursion, EWMA max-slope, and intra-lot variance checks.
- Technologies used: Python, PyTorch, FastAPI, Pandas, React, TypeScript, PostgreSQL, Redis, SQLAlchemy, Alembic, DVC, Apache Airflow, Label Studio, Streamlit, Make, Docker, Prometheus, Grafana, Microsoft Entra ID, Microsoft Graph, OpenShift, Kubernetes.

TraceLink Inc.
Software Engineer Intern

Pune, Maharashtra, India
May 2025 – Oct 2025

- Developed Solution Tester, a no-code UI regression testing framework for TraceLink's OPUS platform that validates configurable customer pages through reusable BDD scenarios.
- Designed the Playwright-based test engine and custom BDD parser, converting human-readable specifications into executable browser tests and integrating critical platform paths into nightly regression suite.
- Technologies used: JavaScript, Playwright, BDD, Jira, JQL.

PROJECTS

Adaptive Resampling-based Training for Imbalanced Classification
[arXiv](#) | [GitHub](#) | [PyPI](#)

Mar 2025 – Feb 2026
under review at MLWA journal

- Developed ART, an adaptive resampling method that updates training distribution using class-wise validation macro-F1 scores and empirical class priors.
- Benchmarked ART against 11 class imbalance methods on 5 tabular, image, and text datasets using 20 fixed-seed runs per method-dataset pair, improving macro-F1 by 2.64 percentage points on average across the tabular datasets.
- Validated the results with Wilcoxon signed-rank tests at $p < 0.05$, and released ART as a reusable PyTorch package on PyPI
- Technologies used: Python, PyTorch, scikit-learn, NumPy, Pandas, Optuna, pytest.

Elixir Chess Engine
[GitHub](#) | [Lichess](#) | [CCRL 40/15](#) | [CCRL Blitz](#)

Feb 2024 – Nov 2024

- Built a UCI-compatible C++ chess engine combining NNUE evaluation with alpha-beta search, quiescence search, transposition tables, and advanced pruning, achieving 3500+ ELO on CCRL 40/15 and Blitz lists and winning the Young Talents CEDR tournament.
- Trained and integrated a sparse 768-input NNUE model that improved playing strength by about 500 ELO points, then optimized inference with AVX2/AVX-512 SIMD and Lazy SMP multithreading and validated each change through SPRT testing.
- Technologies used: C++ 20, Python, NNUE, SIMD, AVX2, AVX-512, Make

SKILLS & ADDITIONAL INFORMATION

- Programming Languages: Python, C++, JavaScript, TypeScript, R, SQL, Java
- Machine Learning and Data: PyTorch, TensorFlow, scikit-learn, OpenCV, Optuna, NumPy, Pandas
- Backend, frontend, and databases: FastAPI, Flask, React, Streamlit, PostgreSQL, Redis, SQLAlchemy, Alembic
- MLOps and infrastructure: DVC, Apache Airflow, Docker, Prometheus, Grafana, NGINX, Git, Linux, pytest
- Leadership: Senior Core Committee Member at CodeChef-VIT, supporting DevSoc 2023 and 2024 hackathons with 1200+ participants each, CookOff 8.0 competitive coding competition with 500+ participants, and co-leading a Foundations of Machine Learning code-along workshop.