Shubhanshu Pokharel

+1-859-608-6892 | shubhanshupo@gmail.com | shubhanshupokharel | Sixteen1-6
Lexington, Kentucky

Education

- **University Of Kentucky** *August 2023 - May 2027*
  B.S. Computer Science | Minor Mathematics | GPA: 4.00 Lexington, USA
  - Coursework: Mathematical Deep Learning, Artificial Intelligence, Machine Learning, Linear Algebra, Data Structures & Algorithms, Cybersecurity, Discrete Mathematics, Computer Architecture
  - Awards: NRNA Scholarship, UKY Cybersecurity Certificate, UKY Artificial Intelligence Certificate

Experience

- **46 Solutions**
  IT Intern Lexington, USA
  - Supported **10+** small businesses, maintaining **99.9%** uptime during peak hours.
  - Developed strong client communication and troubleshooting skills while prioritizing data security.
  - Diagnosed and resolved **200+** network malfunctions across diverse client stacks.
- **Fayette County Public Schools**
  Technical Intern Lexington, USA
  - Streamlined tech systems across **5+** schools, cutting ticket resolution time by **50%**.
  - Integrated **200+** smartboards , improving digital literacy for **3,000+** students.
  - Managed **1000+** Chromebooks from inventory to deployment.

Projects

- **Xenon Transport Simulation — UK Hackathon XI Winner** *March 2025*
  Tools: Python, NumPy, WebGL [D]
  - Simulated **49+** radioactive xenon atoms through zinc-blende membranes via optimized Velocity-Verlet.
  - Achieved **10×** speed-up with spatial hashing and vectorized forces.
  - Built WebGL visualizer with interactive parameter tuning.
- **Horse Racing Prediction System — Applied AI Hackathon Champion** *March 2025*
  Tools: Python, LightGBM [M]
  - Engineered **50+** features on **100k+** race records; LightGBM beat neural baselines by **27%**.
  - Reached **73%** top-3 accuracy using GroupKFold against track-wise leakage.
  - Delivered **150%** improved performance against professional betting odds.
- **Real-Time CCTV Search Engine** *July 2025*
  Tools: Python, PyTorch, YOLOv8, OpenCV, SQLite, Optuna [GitHub]
  - Engineered **5-stage** AI pipeline on **100K+** pedestrian samples; YOLOv8 + multi-region CNN achieved **96%** gender and **88%** clothing classification accuracy.
  - Deployed real-time tracking system processing individuals with **<200ms** query response using natural language interface across live video streams at **35+ FPS**
  - Optimized training with **Focal-Cross-Entropy** loss and weighted multi-attribute objectives , optimizing multi-objective training for **imbalanced** pedestrian datasets.
- **Hand-Derived Neural Network** *February 2025 - May 2025*
  Tools: Python, NumPy [GitHub]
  - Derived full back-prop equations from first principles (scalar → matrix form) and translated proofs into a 200-line NumPy implementation.
  - Published side-by-side LaTeX + Google Colab walkthrough that map each calculus step to code, helping first-time learners replicate the model in < **1** hour.

Skills

- **Programming Languages:** Python, C, C++, R, MATLAB
- **Systems:** Ubuntu Linux, Windows, Bash, Powershell,
- **Data Science & Machine Learning:** TensorFlow, scikit-learn, LightGBM, XGBoost, Optuna, NumPy, Pandas, Transformers
- **Tools:** Git, Vim, Jupyter, Matplotlib, WebGL, Image Processing