

# Hasnaat Malik

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## EDUCATION

**National University of Computer & Emerging Sciences (FAST NUCES)**

*Bachelor of Science in Computer Science*

Punjab, Pakistan

Aug. 2022 – June 2026

## EXPERIENCE

**Campus Ambassador**

*FirstPass AI*

Sept. 2025 – Nov. 2025

*Remote*

- Signed up 80+ students from campus for AI-powered technical interview preparation platform
- Distributed marketing content and provided guidance on interview preparation resources

**Intern**

*Vision Wave*

Aug. 2024 – Sept. 2024

*Remote*

- Created engaging social media content to promote the company's application across multiple platforms
- Gained hands-on exposure to backend development concepts and Django framework fundamentals

## PROJECTS

**Fine-Tuning Transformer Architectures**

*PyTorch, Hugging Face, BERT, GPT-2, T5*

- Fine-tuned BERT encoder for customer feedback classification, achieving strong accuracy and F1-score metrics
- Implemented GPT-2 decoder for pseudo-code to Python code generation using causal language modeling
- Deployed T5 encoder-decoder for text summarization on CNN/DailyMail dataset, evaluated with ROUGE scores

**Urdu-Roman Transliteration System**

*Python, BiLSTM, Seq2Seq, Custom BPE, Streamlit*

- Developed BiLSTM encoder-decoder system with custom BPE tokenizer for Urdu to Roman Urdu translation
- Achieved validation loss of 0.56 and perplexity of 1.75 on 21,003 sentence pairs after 10 epochs
- Deployed interactive Streamlit web interface with batch translation and model evaluation capabilities

**FastFinder - Campus Lost & Found**

*Next.js, TypeScript, MongoDB, Node.js*

- Built full-stack web application for FAST CFD campus following MVC architecture for lost/found items
- Implemented JWT-based authentication, email verification via Nodemailer, and item status tracking
- Designed responsive dashboards for students and admin moderation panel for item management

**Transformer-based Urdu Chatbot**

*Python, Transformers, PyTorch*

- Built a custom Urdu conversational chatbot using a Transformer encoder-decoder implemented from scratch in PyTorch (no pre-trained models).
- Performed Urdu text preprocessing, tokenization, vocabulary creation, and trained with multi-head attention and positional encoding.
- Evaluated the model using BLEU and human fluency and relevance scoring.

**Housing Price Prediction**

*Python, Scikit-learn, Pandas, Seaborn*

- Applied Linear Regression and K-NN models on California Housing dataset for price prediction
- Performed data preprocessing, feature scaling, and visualization with exploratory data analysis
- Evaluated model performance using  $R^2$ , MAE, and RMSE metrics to compare algorithm effectiveness

## TECHNICAL SKILLS

**Languages:** Python, C/C++, JavaScript, TypeScript, SQL

**Frameworks:** PyTorch, Hugging Face, Next.js, React, Node.js, Django, Flask, Scikit-learn, Pandas

**Tools:** Git, MongoDB, PostgreSQL, VS Code, Streamlit

## CERTIFICATIONS

**Harvard CS50x (2023) | Web Development Bootcamp**