**AYUSH BHUSAL**

Machine Learning Engineer | Data Scientist | Building Scalable AI Systems for Real-World Impact

**36 Baggott Street, West Haven | +1 (475) 355 8254 | [bhusalayush5@gmail.com](mailto:bhusalayush5@gmail.com) | LinkedIn**

CS graduate student and former industry data scientist with experience building AI systems at scale. At Medialab, I deployed predictive models and automated analytics pipelines for national media campaigns. I now focus on integrating machine learning into real-world systems to improve decision-making and operational environments.

❖ **University of New Haven**, West Haven, CT
*Master of Science in Computer Science,*
*Expected Dec 2025* | GPA: 3.97
**Projects**: NLP-based feedback system, AWS-hosted ML deployment.

❖ **Coventry University**, Coventry, UK
*Bachelor of Science in Computer Science,*
*Sep 2019 – Jul 2023* |Graduated with First Class.
**Projects**: Constraint-based faculty scheduler, cross-platform mobile app (MusicMate).

**Work Experience**

**Medialab Group**, London, UK

Data Scientist | Jun2021-Jul2022

- ❖ Refactored legacy codebase and restructured reporting workflows, increasing system efficiency by 20% and reducing dashboard bugs by 30% across internal dashboards; collaborated with data engineers to maintain and scale pipelines supporting both modeling and reporting.
- ❖ Led company-wide automation efforts using Python and Airflow and initiated the cross-departmental "Automate or Eliminate" campaign to reduce repetitive tasks, cutting manual reporting by 55%, confirmed via internal KPIs and team feedback.
- ❖ Designed and deployed predictive analytics models with Scikit-learn and XGBoost to improve media targeting; applied Media Mix Modeling to evaluate effectiveness of campaigns for non-profit clients.
- ❖ Built dashboards in Adverity (Apollo) and Power BI to visualize model outputs and campaign metrics, enabling real-time insights for planning and reporting teams.
- ❖ Contributed to the shift toward scalable infrastructure by deploying batch workflows on AWS EC2 and Lambda for data processing automation.

**Technical Skills**

- ❖ **Programming:** Python (Advanced), R, SQL, C++, C#, HTML/CSS, JavaScript
- ❖ **Machine Learning & AI:** Scikit-learn, XGBoost, Keras, PyTorch, U-Net (Instant Segmentation), Semantic Segmentation, OpenCV, COCO Format, TensorFlow (basic), NLP (LDA, Sentiment Analysis), Media Mix Modeling
- ❖ **Data Analysis & Visualization:** Pandas, NumPy, Tableau, Matplotlib, Seaborn, A/B Testing, Data Cleaning, EDA
- ❖ **Cloud & DevOps:** AWS (S3, EC2, Lambda, SageMaker), Terraform, Docker, Kubernetes, Auto-scaling, CI/CD Pipelines
- ❖ **Tools:** Git, Github, Airflow, API Integration, Flask, Django, OOP, Unit Testing

**Selected Projects**

- ❖ **TrashNet-Vision: Multi-Class Segmentation with U-Net** | *PyTorch, COCO Annotations, Instant Segmentation, U-Net*
Built a U-Net segmentation pipeline on 60-class TrashNet masks using COCO-format polygons. Achieved 88%-pixel accuracy and 72% mIoU with boundary-preserving outputs via skip connections and decoder upsampling.
- ❖ **AI-Powered Feedback System for YouTube Creators** | *Python, OpenAI API, Pandas, Scikit-learn, Seaborn*
Built an end-to-end NLP system to extract comments via YouTube API, perform sentiment analysis and topic modeling (LDA), and deliver tailored feedback to creators. Automated visualization pipeline using Seaborn and deployed interactive summary.
- ❖ **Census Income Prediction (ML Pipeline)** | *Scikit-learn, XGBoost, GridSearchCV, Jupyter*
Trained and optimized multiple classification models (SVC, Logistic Regression, Random Forest, Gradient Boosting) on the UCI Adult dataset. Achieved 87% accuracy with Gradient Boosting after hyperparameter tuning. Built reusable pipeline with modular code.
- ❖ **Automated Client Reporting Framework** | *Python, Excel(Visual Basic), PowerPoint, Airflow*
Designed client-facing automation scripts for weekly reporting and A/B test summaries. Reduced manual workload by 5 hours per analyst per week. Integrated automated visualizations and significance testing into executive-ready decks.
- ❖ **MusicMate: Cross-Platform Companion App** | *C#, .NET MAUI, MVVM, REST API*
Designed and implemented a music app with real-time lyric search, playlist management, and external API integrations. Followed MVVM architecture and clean UI/UX patterns for a mobile-first experience. Deployed to Android and Windows via CI pipeline.