Ujjwal Sahu

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SUMMARY

AI & Software Engineer with experience in artificial intelligence, cloud systems, scalable software development, end-to-end deployment, and healthcare AI solutions. Strong background in LLMs, automation, optimization, and research-driven product development.

EDUCATION

National Taiwan University of Science and Technology **Feb 2023 – Feb 2025**
M.S. Computer Science & Information Engineering | GPA: 4.08 *Taipei, Taiwan*

- **Advisor:** Dr. Binayak Kar | bkar@mail.ntust.edu.tw
- Specialized in Artificial Intelligence, Generative AI, GAN-based learning, cybersecurity analytics, and scalable intelligent systems
- Designed advanced intrusion detection models for minority-class attack prediction using GANs, hybrid ML, and imbalanced data optimization
- **Published research:** *HybridGuard: Enhancing Minority-Class Intrusion Detection in Dew-Enabled Edge-of-Things Environments*
- *Computer Networks* (Elsevier), 2025

Galgotias University **2016 – 2020**
B.Tech Computer Science & Engineering *Greater Noida, India*

- Engineered an AI-oriented healthcare monitoring system using real-time sensors, automated alerts, and intelligent decision workflows
- Implemented data analysis techniques for continuous patient monitoring, anomaly detection, and system reliability

SKILLS

Languages: Python, C++, Java, SQL
AI / ML: LLMs, NLP, Deep Learning, Prompt Engineering, Generative AI
Frameworks: TensorFlow, PyTorch, Keras, Scikit-learn, Huggingface, OpenCV
Cloud / DevOps: AWS, Azure, Docker, Kubernetes, CI/CD Pipelines
Systems: SDLC, Testing, Debugging, Requirement Analysis
Development Tools: Git, GitHub, Linux, Jupyter Notebook,Anaconda, VS Code, Android Studio, LaTeX

EXPERIENCE

CYCU **Sept 2025 – Present**
AI Researcher *Taoyuan, Taiwan*

- Developed biomedical AI applications using LLMs, prompt engineering, multimodal learning, and on-device deployment
- Built a digital therapy platform integrating LLM-based cue generation and Stable Diffusion for visual assistance
- Designed AI-driven solutions for aphasia therapy and anxiety management with real-time mobile interaction
- Contributed to research studies, technical reviews, and publication-oriented system development

D-Link Corporation **Jul 2023 – Aug 2023**
Cloud Operations Intern *Taipei, Taiwan*

- Worked with AWS services including SNS, CloudWatch, SES, SQS, and RDS for monitoring and cloud operations
- Enhanced monitoring workflows by modifying Python scripts and improving email service integration
- Automated operational tasks using AWS CLI to improve service reliability and efficiency

HCL Technologies **Mar 2021 – Feb 2023**
Cloud Analyst (Hybrid Cloud) *Noida, India*

- Built and managed cloud infrastructure across AWS and Azure environments
- Configured VPCs, cloud networking, and secure deployment architecture
- Improved system performance, reliability, and operational stability

PROJECTS

AI-Based Aphasia Therapy System *LLM + Multimodal AI*

- Built end-to-end healthcare AI system for aphasia therapy using LLMs, multimodal pipelines, and mobile deployment
- Used Qwen2.5-7B-Instruct for intelligent cue generation with prompt optimization and real-time inference
- Integrated Stable Diffusion for therapy image generation and tablet-based interaction

AI-Based Anxiety Management Application *Flutter + AI + NIRS*

- Developed real-time mobile wellness app with breathing interventions, local storage, and user interaction features

Early Cancer Detection using Deep Learning *Medical AI*

- Built medical image segmentation pipeline with preprocessing, model training, and evaluation for early diagnosis

Intrusion Detection System *Hybrid ML*
- Designed hybrid anomaly detection model using Naive Bayes and SVM for network security applications

Network Intrusion Detection using CWGAN-CSSA *Cybersecurity + AI*
- Applied GAN-based approach to handle imbalanced datasets and improve minority-class intrusion detection

Graph-Based Learning *Link Prediction & Community Detection*
- Implemented graph machine learning models for network structure analysis, prediction, and clustering tasks

Recommendation System *Collaborative Filtering*
- Developed recommendation engine using collaborative filtering techniques for personalized item prediction

Visitor Counting System *IoT + Cloud + AWS*
- Developed cloud-based visitor tracking system using Raspberry Pi, ultrasonic sensor, ESP32, Wix, and AWS
- Enabled automated visitor counting, dashboard monitoring, and remote data access

Food Delivery System *Full-Stack Application*
- Designed and implemented full-stack application with database integration and end-to-end workflow support

CERTIFICATIONS & AWARDS

Certifications
- AWS Certified Cloud Practitioner
- AWS Academy Cloud Security Foundations
- ITIL Certification
- Core Java Certification
- Big Data & Hadoop
- Step Into Robotic Process Automation During GUVI's RPA SKILL-A-THON

Awards
- D-Link Scholarship – Two-time recipient at NTUST
- JNVST Qualified – Jawahar Navodaya Vidyalaya Selection Test, 2008
- 1st Rank in Product Launch Contest for Presentation
- Achieved Grade A in an Information Technology Programme course
- First Grade in Mathematics Competition

LANGUAGES

English (Professional) | Hindi (Native) | Chinese (Beginner)

REFERENCES

Dr. Binayak Kar | bkar@mail.ntust.edu.tw
Dr. Beverly Chen | beverly.chenfuyu@gmail.com