Asad Khalid

Phone: +491743716796 Email: asad.khalid53@gmail.com
linkedin.com/in/asadkhalid-softdev github.com/asadkhalid-softdev
Address: Bremen, Germany

PROFESSIONAL SUMMARY

Machine Learning Engineer with 5+ years of experience architecting and deploying AI solutions that bridge theoretical research and practical industry applications. I strive to create AI systems that augment human potential in industrial settings, enhancing efficiency while maintaining human-centered design principles. Proven track record of improving model accuracy by 15-20% and reducing inference time by 30% across computer vision, NLP, and time-series applications. Passionate about developing AI that transforms complex data into actionable insights for strategic decision-making.

SKILLS

Core Expertise:	Deep Learning, Computer Vision, NLP, Time-Series Analysis, LLMs
Advanced:	Python, TensorFlow, PyTorch, Docker, MLflow, Hugging Face
Proficient:	AWS, SQL, JavaScript, RAG Pipelines, Vector Databases
Data Stack:	Pandas, NumPy, MongoDB, PostgreSQL

LANGUAGES

Urdu:	Native/Bilingual
English:	Professional
German:	Proficient

EXPERIENCE

- **AI/Machine Learning Engineer** 09/2019 - Present
  Pumacy Technologies AG *Bremen, Germany*
  - Develop and maintain an automated image segmentation pipeline using DeepLabV3+ to detect window regions in in-car VR images, **reducing partner workflow time by 80%** and integrating a real-time FastAPI interface for B2B model deployment
  - Design and optimize ML pipelines for metal 3D printing defect prevention using DeepLabV3+, **improving print success rate by 30%** and serving as primary technical liaison with partner engineering team
  - Deliver anomaly detection models across wind turbine, molding machine, and battery datasets using LSTM autoencoders with SHAP-based feature attribution, achieving up to **25% reduction in unplanned downtime**
  - Lead development of state-of-the-art object detection, tracking, and hand gesture recognition systems for interactive HRC environments, **improving UX responsiveness by 40%**
  - Spearhead development of domain-specific conversational LLMs for the nutraceutical industry, fine-tuned on biomedical corpora with RAG infrastructure, **boosting training efficiency by 60%**
  - Collaborate with Infineon Technologies to optimize semiconductor burn-in testing by predicting chip anomalies using production data, contributing to a paper presented at ESREL 2023

- **Backend Developer (spin-out from Pumacy Technologies AG)** 01/2021 - Present
  Redimi GmbH *Bremen, Germany*
  - Architect and maintain the backend infrastructure for a blockchain-powered gift card platform, enabling tap-to-pay redemption via Apple/Google Wallet and QR scanning using gift pass tech
  - Integrate third-party services including Stripe (payments), SendGrid (email), and Polygon smart contracts (blockchain ledgering), ensuring smooth financial and ledger operations across Web2 and Web3 layers
  - Lead backend API development using Node.js and Strapi, supporting onboarding of 20+ enterprise clients with customizable redemption workflows and secure digital wallet integrations
- **Student Research Assistant** 09/2017 - 09/2019
  BIBA GmbH *Bremen, Germany*
  - Contributed to multiple applied AI research projects, including an object tracking system for logistics robotics and a one-shot learning-based visual inspection solution for manufacturing quality control
- **AI Intern** 06/2017 - 09/2017
  Nextremer Co., Ltd. *Tokyo, Japan*
  - Assisted in developing an object detection module for an autonomous mobile robot designed to identify and collect waste in public environments, focusing on model training, data preprocessing, and real-world deployment testing

EDUCATION

- **M.Sc. Controls, Microsystems, Microelectronics** 04/2016 - 09/2019
  University of Bremen *Bremen, Germany*
  - Grade: 1.78 (German scale)
  - Thesis: Mental State Recognition using Deep Learning for Human-Robot Collaboration
- **B.Engg. Electronics** 09/2011 - 09/2015
  PAF-KIET *Karachi, Pakistan*
  - Grade: 3.6/4
  - Project: Visual inspection system for pharmaceutical tablets using OpenCV

PUBLICATIONS

- Khalid, A., et al. (2023). Process Data Analysis for Improved Burn-In Strategies Based on Complementary AI Models. ESREL 2023